JOURNAL

of the

INDIAN MEDICAL ASSOCIATION

VOLUME 32 NUMBER 1 CALCUTTA JANUARY 1, 1959

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TABLE OF CONTENTS

ORIGINAL ARTICLES	Page
1. Observations and Experiences in the Surgery of Congenital Cyanotic Heart Disease—A. K. Basu and K. Chatterjee	1
2. Benign Pneumoconiosis in Monkeys in India—R. K. Goyal and D. P. Gupta	8
3. Incidence of Rh-negative Rate and Nature of Phenotypes amongst the Bengalees—M. N. Roy, S. Ghosh, D. Ray Mahasaya and P. C. Mitra	10
4. Incidence of Human Anthrax in North Kanara—N. S. Deshpande	13
PRACTITIONERS' SERIES	
Abscess and its Management—S. C. Almast ...	14
CASE NOTE	
Aneurysm of the Pulmonary Artery—N. R. Konar and D. Sarker	18

EDITORIAL	Page
Our Conference	19
CURRENT MEDICAL LITERATURE	20
CURRENT TOPIC	
Medical Council of India, 15th Session, 1958—Extracts from the Presidential Address of Dr. C. S. Patel	22
NOTES AND NEWS	30
CORRESPONDENCE	33
REVIEWS	34
OBITUARY	38

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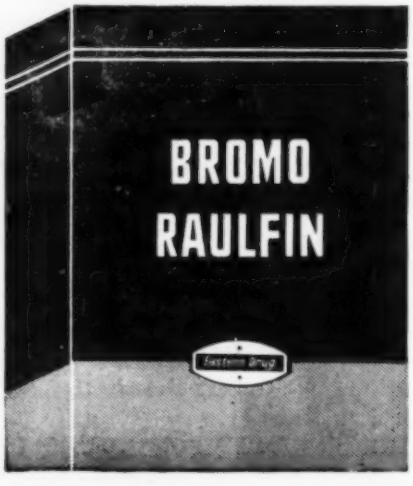

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INDEX TO ADVERTISERS

	Page
Alembic Chemical Works Co. Ltd.	xii
Antiseptic	xxiv
Bengal Chemical & Pharmaceutical Works Ltd.	Front Cover
Bengal Immunity Co., Ltd.	xxii
Calcutta Chemical Co. Ltd.	3rd Cover
Corn Products Co. (I) Private Ltd.	xviii
Dey's Medical Stores (Mfg.) Private Ltd.	xvi
Dragon Chemical Works (R) Pvt. Ltd.	vi
Eastern Drug Co.	ii
East India Pharmaceutical Works Ltd.	xx
Franco Indian United Laboratories	vii, xiii
G. D. A. Chemicals Ltd.	xxiii
G. D. Pharmaceuticals Private Ltd.	iii
Glaxo Laboratories (India) Private Ltd.	x
Gluconate Ltd.	vi
Govt. of West Bengal	xvii
Hyderabad Chemical & Pharmaceutical works Ltd.	iv
Indian Health Institute & Lab. Ltd.	vi
Indo-Pharma Pharmaceutical Works Pvt. Ltd.	xv
Jeena & Company	xviii
John Wyeth & Brother Ltd.	xxvi
Lederle Laboratories (India) Ltd.	i
May & Baker (India) Private Ltd.	ix, xix
Menley & James Ltd.	viii, xxv
Navaratna Pharmaceutical Labs.	xviii
Neo-Pharma Private Ltd.	v, xi
Pfizer Eastern Corporation (Ravison Pharmaceutical Pvt. Ltd.)	2nd Cover
Ranbaxy & Co. Private Ltd.	xxiii
Raptakos, Brett & Co. Private Ltd.	xxi
Sanitex Chemical Industries Ltd.	xv
Scientific Publication Concern	xviii
Stadmed Private Ltd.	xix
Suhrid Geigy Trading Private Ltd.	xxi
Unichem Laboratories	Back Cover
W. T. Suren & Co. Private Ltd.	xiv
Zandu Pharmaceutical Works Ltd.	xxiv

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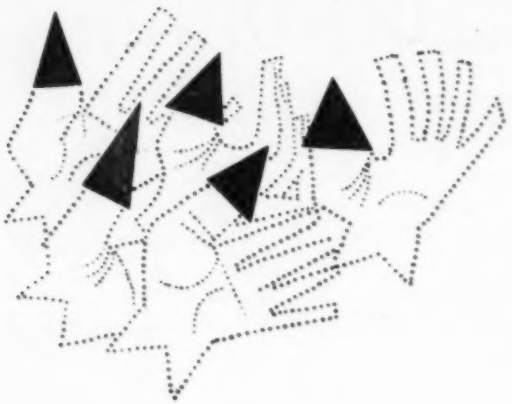

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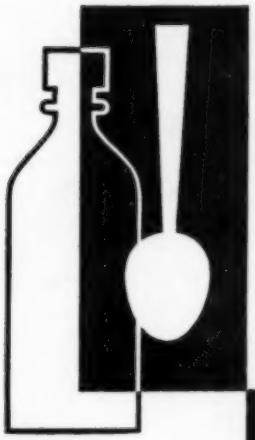

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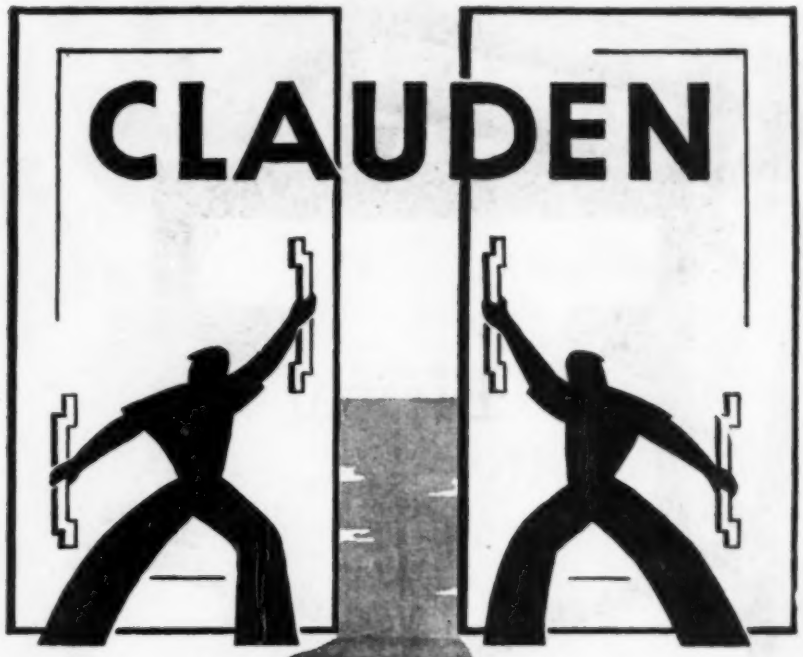

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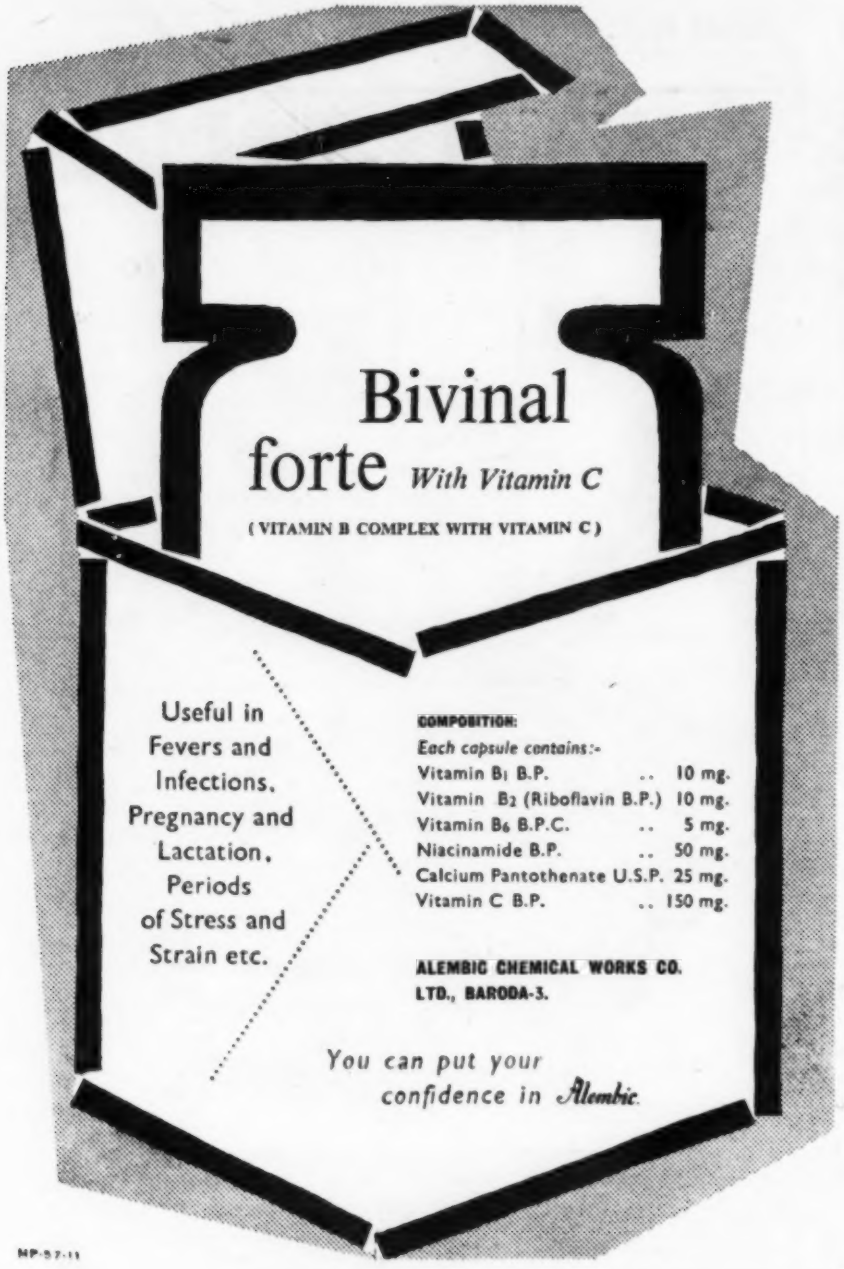
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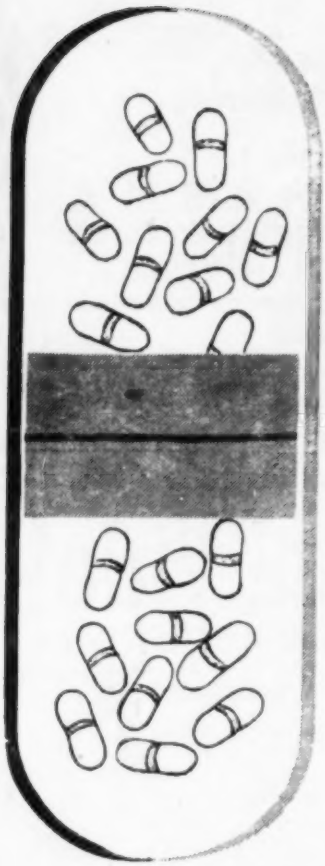

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VOLUME 32
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PUBLISHED TWICE A MONTH
EDITOR—P. K. GUHA, M.B., M.R.C.S. (ENG.), D.O.M.S. (LOND.)

CALCUTTA
JANUARY 1, 1959

ORIGINAL ARTICLES

OBSERVATIONS AND EXPERIENCES IN THE SURGERY OF CONGENITAL CYANOTIC HEART DISEASE*

A. K. BASU, M.S., F.R.C.S., F.A.C.S.

Director-Professor, Department of Surgery
Institute of Post-graduate Medical Education and Research, Calcutta

AND

K. CHATTERJEE, M.B.B.S. (CAL.)

Research Fellow, Department of Thoracic Surgery
University College of Medicine, Calcutta

In 1945 Blalock and Taussig published their epoch-making work on the treatment of certain cases of congenital cyanotic heart disease. This gave tremendous impetus in the investigation and attempts at surgical correction of these cases. It was soon realised that the conventional methods of diagnosis such as clinical observation and examination and also electrocardiography, although very important by themselves, are often inadequate in arriving at a precise diagnosis of the many varied anatomical abnormalities involved. Catheterisation of the heart to obtain pressure readings and blood samples in the different chambers was introduced by Forssmann and perfected by Cournand (1949). Angiocardiography to visualise the living circulatory anatomy was tried out and its potentialities explored by Dotter and Steinberg (1951). *Pari passu* with these advances in the methods of diagnosis have followed improvements in the methods of repair.

From closed, indirect and blind procedures, we have now come to open, direct and visual methods of correction. 'Open' cardiac surgery from the realm of fiction becomes a distinct possibility and even a routine procedure is expected to be evolved in the near future in the management of these obscure intracardiac defects.

This paper is an attempt at correlating our experiences in the diagnosis and management of the group congenital cyanotic heart abnormalities during the last few years.

METHOD AND MATERIAL

In addition to a careful clinical, roentgenographic and electrocardiographic investigation, cardiac catheterisation and angiocardiographic study have been done in most of the cases. Of the 22 cases which are included in this study, 14 have been operated on.

DISCUSSION

It is essential that prior to operation, the surgeon should have a fairly accurate idea of the anatomical abnormality involved. In many cases this is not possible and considering that the majority of the cyanotic cases can be helped either by

* Paper presented at the 19th Annual Conference of the Association of Surgeons of India, Nagpur, December, 1957.

a shunt procedure or by a direct attack on the stenosed pulmonary valve and considering also that the operative exploration would give opportunities for making a more accurate study of the details of the abnormality, it might seem unnecessary to spend considerable time or effort in preoperative investigation. This is true in certain instances but it is in the screening out of those cases that are not likely to benefit from any operative procedure that efforts should be directed. The cyanotic cases do not tolerate well the postoperative status quo position. Unless they can be improved at operation, their postoperative state is stormy and the mortality rate in such cases is high.

It is known that about 66 per cent of cases of congenital cyanotic heart disease are cases of Fallot's tetralogy. This includes a group of 9 per cent which in addition is associated with varying degrees of pulmonary hypo-development or even atresia (Campbell, 1955). Other allied abnormalities include: tricuspid atresia (5 per cent) with a diminutive right ventricle and atrial septal defect with pulmonary stenosis (6 per cent) and also Eisenmenger's complex (6 per cent). Still other obscure abnormalities constitute another 4 per cent of the cases.

The diagnostic criteria of a typical case of Fallot's tetralogy are well known. A fairly incapacitated child with cyanosis developing and increasing from or shortly after birth has clubbing of fingers and toes and is less developed as compared to his years. There is a systolic murmur and a thrill at the base. P_2 is normal or diminished. The heart is boot-shaped and the lung fields are oligaemic. Catheterisation shows high pressure in R.V. and low pressure in pulmonary artery indicating stenosis in the ventricular outflow tract. E.C.G. shows right ventricular hypertrophy or even strain pattern. Angiography shows dextroposition of the aorta and simultaneous opacification of the aorta and the pulmonary artery. Some of these clinical findings may be modified or may even be absent in some of the cases.

The relative importance of these criteria and how their variations help in distinguishing the various types of abnormalities, as exemplified in our cases, will now be discussed.

Cyanosis—In Fallot's tetralogy cyanosis is usually present either from or shortly after birth and is progressively increasing. The haemoglobin ranges between 16 to 23 g. per cent and the packed cell volume of the R.B.C. from 55 to 70 c.c. per cent. The degree of cyanosis is an index of the amount of right-to-left shunt and also of the severity of the obstruction at the right ventricular pulmonary outflow tract. When cyanosis develops much later, is mild and is present only on exercise, suspicion should always be aroused of the presence of a relatively unusual type of abnormality such as A.S.D. with pulmonary stenosis or of a compensating left-to-right shunt—either a P.D.A. or hypertrophied bronchial artery supply. This was exemplified in one of our cases where a large P.D.A. was compensating for Fallot's tetralogy and where mild cyanosis developed when the patient was six years old and only slowly increased with the passage of years.

Murmur—A grade II or grade III systolic murmur over the pulmonary area and propagated to the back is usual in Fallot's tetralogy and is indicative of pulmonary or infundibular stenosis. Its absence should lead to suspicion of relative or absolute pulmonary artery hypodevelopment. This murmur was absent in 4 of our operated cases. Of these cases, one had a right-sided aortic arch with abnormality in the aortopulmonary root, one was a case of tricuspid atresia and two were cases of pulmonary artery atresia. On the other hand, another case, where pulmonary artery atresia was suspected as the result of angiographic study, had well-marked grade III murmur. She was operated on on this basis and was found to have well-developed pulmonary artery.

E.C.G.—In Fallot's tetralogy, it is usual to get a R.V.H. and sometimes strain pattern. If however the pattern is of the left ventricular type, tricuspid atresia should be strongly suspected. This was evident in the 2 cases of tricuspid atresia that we were able to diagnose. One was operated on and unfortunately succumbed to left ventricular failure 3 days after operation. At autopsy, the anatomical abnormality in the heart was studied in detail and revealed a markedly diminutive right ventricle (Fig. 1).

Fluoroscopy and roentgenography

(a) BLOOD FLOW TO THE LUNG: Careful evaluation of the fluoroscopic observations and ordinary roentgenographic study is of great help in determining the overall blood flow to the lungs. This fact is of fundamental importance as those cases where the peripheral lung fields do not evidence oligaemia are unlikely to benefit by operation. In 3 of our cases, ischaemia of the lung fields was not considered significant even though the cyanosis was well marked. At operation numerous vascular adhesions could be seen coursing between the parietes and the lung surface indicating attempt at compensatory vascularisation of the lung. The pulmonary artery was relatively hypoplasic in all these cases. Generally these extra-

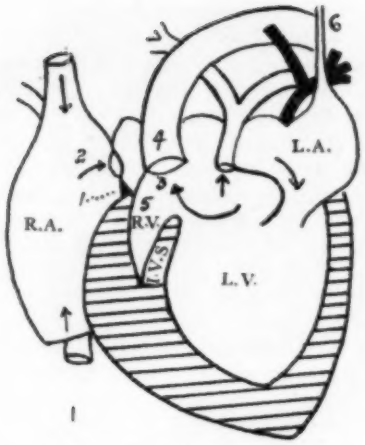


FIG. 1—SHOWING ANATOMICAL ABNORMALITIES OF THE CHAMBERS OF THE HEART IN TRICUSPID ATRESIA.
R.A. : Right auricle, L.A. : Left auricle, R.V. : Right ventricle, L.V. : Left ventricle. 1. Tricuspid atresia, 2. Atrial septal defect, 3. Interventricular septal defect, 4. Overriding aorta : anterior transposition to pulmonary artery, 5. Rudimentary right ventricle, 6. Left superior vena cava opening in left artrial appendage.

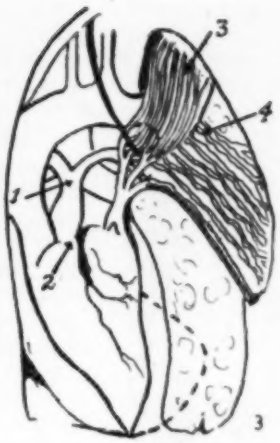


FIG. 3—SHOWING LEASH OF VESSELS SPREADING BETWEEN THE PERICARDIUM AND THE MEDIAL SURFACE OF THE LEFT LUNG.
1. Atresic pulmonary artery, 2. Infundibular stenosis. 3. Leash of vessels, 4. Rows of vessels.

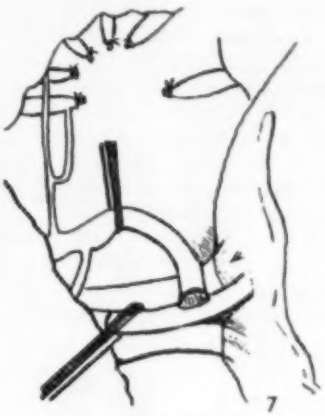


FIG. 7—SHOWING ORIGIN OF LEFT SUBCLAVIAN ARTERY FROM RIGHT-SIDED AORTIC ARCH CROSSING TO THE LEFT BEHIND OESOPHAGUS. THE ARTERIAL BRANCHES HAVE BEEN LIGATED AND DIVIDED AND THE ARTERY HAS BEEN TURNED DOWN FOR ANASTOMOSIS WITH THE PULMONARY ARTERY.

pulmonary vascular sources appear as blotchy peripheral shadows but they may resemble normal pulmonary vessels with large arterial branches spreading fanwise towards the periphery. In one such case, the left upper lobe branch seemed unduly prominent both in ordinary x-ray as well as in angiocardiography (Fig. 2, *vide* Plate). At operation a large thick leash of vessels was observed spreading between the pericardium and the medial surface of the lung and the pulmonary artery was atresic (Fig. 3). In many cases the source of the extrapulmonary supply is from the bronchial vessels. In others, they may be from aortic intercostals and in still others as in one of our cases, the persistent P.D.A. may contribute to the vascularity of the lung.

Operative interference in such cases should be undertaken after good deal of deliberation as unless the pulmonary supply to the lungs can be definitely improved either by valvotomy, infundibular resection or by a good shunt procedure, it can only do harm and the patient would be left in a worse state than before the operation. The mortality rate in such cases is bound to be higher and the postoperative course stormier.

(b) SHAPE OF THE HEART : The Fallot heart is generally known as boot-shaped with round-off and uplifting of the apex indicating right ventricular hypertrophy at the expense of the left. The pulmonary conus region is generally constricted indicating stenosis (Fig. 4, *vide* Plate).

Our experience shows however that the conus region may sometimes be prominent indicating post-stenotic dilatation and that the level of prominence may indicate the approximate site of dilatation—valvular or infundibular (Fig. 5, *vide* Plate). This has been stressed by Brock (1957). Contrariwise an unusually narrow pulmonary conus may indicate pulmonary atresia and this also has been exemplified in several of our cases (Fig. 6, *vide* Plate).

(c) IMPRESSION ON THE BA-FILLED OESOPHAGUS : This is of importance in determining the position of the aortic arch. In a certain percentage of Fallot's tetralogy, the arch is situated on the right side of the middle line. In such cases, the aortic impression is on the right wall of the oesophagus in P.A. view and usually on the posterior wall in the lateral view. We had one such case and the left subclavian artery in this case was seen at operation to come from behind the trachea before coursing to the left apex. (Fig. 7).

Angiocardiography—The significant feature of this study in Fallot's tetralogy is the simultaneous opacification of the aorta with the pulmonary artery (Fig. 8, *vide* Plate). In addition, the

site of obstruction in the pulmonary outflow tract and the post-stenotic dilated trunk can often be well visualised. Also because of the stenosis, the dye remains longer in the right ventricle. If the pulmonary artery including its peripheral branches are poorly seen, hypoplasia or atresia should be suspected. This however is not always true as in one of our cases and must be correlated with other allied observations such as the murmur and the pulmonary second sound. If the pulmonary fields show vascular opacification at a relatively late stage of the process, extrapulmonary source of vascular supply such as the intercostals or the bronchials must be suspected.

Aortography—This investigation is seldom necessary. However it was of great help in one of our cases.

This patient was moderately cyanosed and a continuous grade III murmur was heard at the base. P.D.A. had been strongly suspected but the pulse pressure was not wide. By angiography, Fallot's tetralogy had been suspected and it appeared that as if the trunk of the pulmonary artery was in communication with the right but not the left branch. Ordinary P.A. view had showed a prominent left pulmonary artery. A catheter was passed through the left bronchial and subclavian artery into the arch of the aorta.

Introduction of the dye showed the presence of a large ductus in communication with the left but not with the right branch of the pulmonary artetry (Fig. 9, *vide* Plate). All this was confirmed at operation and the root of the left pulmonary artery at its take-off from the trunk was found atresic (Fig. 10).

Cardiac catheterisation—Catheterisation study was performed in 17 of the 22 cases reported here. In our experience, pressure studies have given us more information and are more reliable than gas analysis. The usual finding is a low pressure (0-5 mm. Hg) in the right atrium and very high pressure (60-120 mm. Hg) in the right ventricle. The pulmonary artery and its branches were entered into in 8 cases. Significant drop of pressure in the pulmonary artery as compared to right ventricular pressure indicated stenosis at the outflow tract. Attempt was made to determine the exact site of stenosis whether valvular or infundibular. This is not always possible. However in 4 cases, the catheter registered significant drop of pressure at the infundibulum of the right ventricle indicating stenosis at this region. In 2 of these cases further fall was noticed as the catheter entered the pulmonary artery trunk showing additional stenosis at the valvular level. The presence of the combined type of stenosis has been mentioned by Brock (1957). In one case, the catheter entered the aorta from the right ventricle conforming dextroposition (Fig. 11, *vide* Plate). In another

FIG. 10—SHOWING THE PRESENCE OF A LARGE DUCTUS IN COMMUNICATION WITH THE LEFT BRANCH OF THE PULMONARY ARTERY. ARROW POINTS TO INFUNDIBULAR STENOSIS.

FIG. 13—SHOWING A MASS OF TORTUOUS VESSELS COVERING THE HILUM OF THE LUNG AND THE ARCH OF THE AORTA.

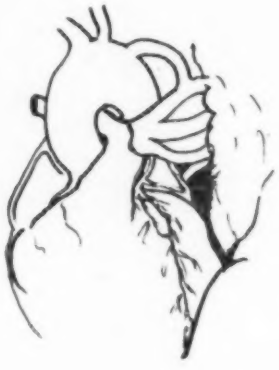


FIG. 14—SHOWING ANASTOMOSIS OF THE SUBCLAVIAN ARTERY WITH THE UPPERMOST BRANCH OF PULMONARY ARTERY IN A CASE WHERE THE PUMONARY ARTERY HAD BEEN DIVIDED EARLY.

Fig. 2—Angiocardiogram showing prominent vascular markings in the upper zone of left lung field

Fig. 4—P. A. view in a case of Fallot's, showing constricted pulmonary conus and a boot-shaped heart

Fig. 5—Angiocardiogram showing pulmonary stenosis at valvular level with marked post-stenotic dilatation

Fig. 6—Angiocardiogram showing narrowed pulmonary conus, indicating pulmonary atresia

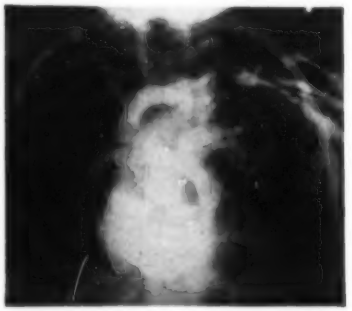


Fig. 8—Angiocardiogram in a case of Fallot's, showing simultaneous opacification of the aorta and the pulmonary artery

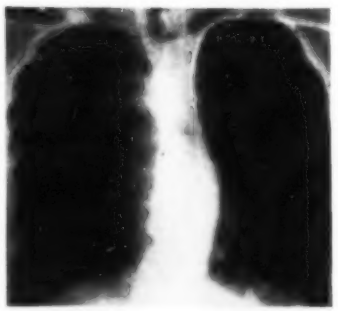


Fig. 9—Aortogram showing large ductus communicating with the left branch of pulmonary artery

Fig. 11—Skiagram showing passage of cardiac catheter from right ventricle to aorta and the right subclavian artery

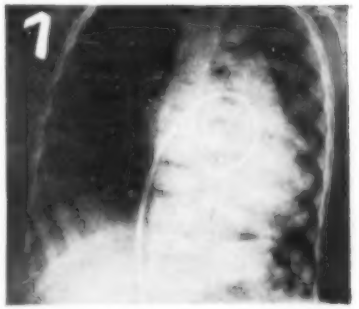
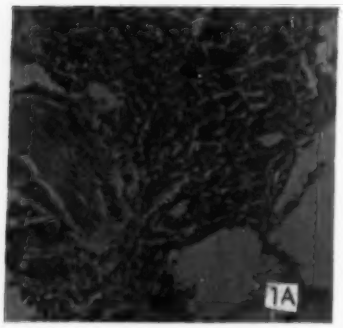
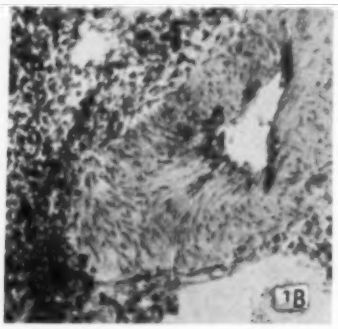
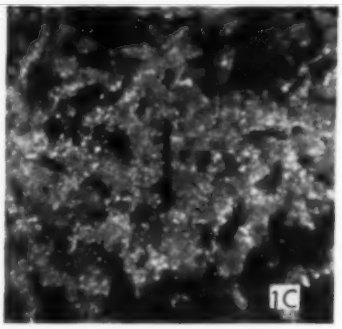
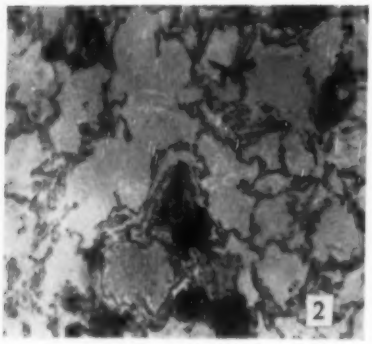


Fig. 12—Skiagram showing passage of cardiac catheter from right atrium to left atrium through A. S. D. and thence to the left ventricle









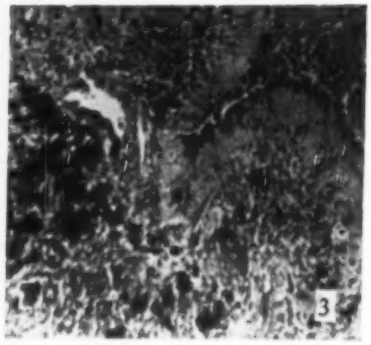


Fig. 1A – Showing granulomatous lesion with dust particles (× 264)

Fig. 1B—Showing thickened vessel (× 264)

Fig. 1C—Showing silica in granulomatous lesion (× 440)

Fig. 2—Showing foci of lymphocytic infiltration and marked emphysema (× 60)

Fig. 3—Showing collapsed bronchiole with granuloma, dust cells and carbon particles (× 264)

GOYAL AND GUPTA—*Benign Pneumoconiosis in Monkeys in India (p. 8)*

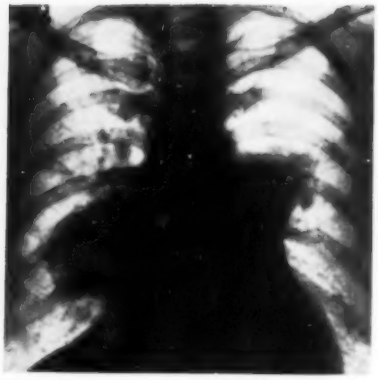


Fig. 2 P. A. view showing aneurysmal dilatation of pulmonary artery and its right branch

Fig. 3—R. O. A. showing deep indentation and posterior deviation of barium-filled oesophagus by the dilated pulmonary artery

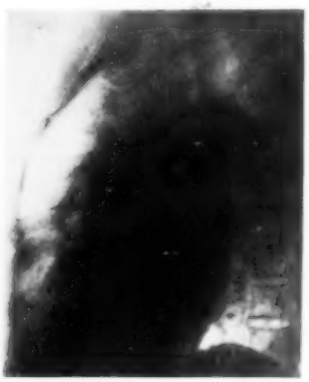


Fig. 4—L.O.A showing obliteration of normal translucency of the aortic window by dilated left main branch

KONAR AND SARKER—*Aneurysm of Pulmonary Artery (p. 16)*

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case, the catheter entered into what appeared to be left ventricle from the right ventricle presumably through the ventricular septal defect. In another case, the catheter could be passed through the atrial septal defect into the left atrium and then to the left ventricle indicating a large A.S.D. associated with pulmonary stenosis and consequent right-to-left shunt (Fig. 12, *vide* Plate).

Operation

In the usual type of pure Fallot's tetralogy, the decision as regards operation can be taken with relative assurance. It is in the uncommon type of cyanotic cases—viz., those where there is no murmur or where there is a continuous murmur, where the E.C.G. shows L.V.H. pattern, where the pulmonary fields are not typically oligaemic—that the surgeon accepts additional risk in undertaking the operative exploration. This is well illustrated in our series. Of the 8 'pure' Fallot cases operated on, none died directly due to the operation. Of the 4 'impure' or complicated cyanotic cases operated on, 3 died from causes which could be considered secondary to the operative procedure Campbell (1955) mentions 5 per cent as the mortality in 'pure' Fallot type and over 20 per cent in the 'impure' type.

We have invariably utilised the standard left thoracic approach through the 4th interspace and have not met with any difficulty. In most cases, the lung surface is free from adhesions and can be retracted with ease. In a few cases there were large vascular adhesions with the chest wall. The significance of these have been mentioned already and every effort should be made to preserve them.

The relative place of a direct attack on the pulmonary outflow tract by infundibular resection or valvotomy or a Blalock type of shunt operation has been discussed at length by Brock and others. There is no doubt that the direct repair is more physiological and that it can give good results. However, in most hands, it has been associated with a higher mortality. Also, the idea of punching out chunks of myocardium by a blind procedure is certainly not an attractive proposition unless the anatomical abnormality can be ascertained pre-operatively with certain exactitude. Simple valvotomy is usually not adequate in normalising the stenosed outflow tract.

Our experience therefore has been invariably of the shunt procedure and only the subclavian pulmonary artery anastomosis.

The pericardium should invariably be opened and the anatomical abnormality should be studied in detail. In one case, where this was not done, the superior pulmonary vein was mistaken for the pulmonary artery. This was a case of tricuspid atresia and the diminutive pulmonary trunk was deeply placed behind the aortic root.

In the attempt at shunt procedure, the first difficulty is the enormous mass of tortuous varicose vessels that cover the hilum of the lung and the arch of the aorta (Fig. 13). To obtain good exposure of the pulmonary artery, these must be dissected with care ; a good procedure is to start at the upper border of the aortic arch and proceed downward remembering that one may come across the recurrent laryngeal nerve and that there may be a diminutive ductus. Nearly 1 inch of the pulmonary artery must be isolated to obtain good control. In some cases, the artery divides early into branches. In 2 of these cases, we were able to anastomose the subclavian artery with uppermost subdivision, in one case end to side and in another end to end, and obtained fairly satisfactory result (Fig. 14).

The preparation of the subclavian artery for anastomosis requires careful dissection. In most of our cases, the length of the artery was not as much as we would have liked and the 5 branches had to be individually ligated and divided in order to obtain greater length. In 2 of our cases, a portion of the main subclavian branch was utilised to gain additional length for anastomosis and in another the vertebral branch was the largest and therefore was made use of.

Another important point to note is that the main subclavian trunk may occasionally have small fine tributaries and they have to be carefully dissected and individually divided and ligated. In our first case, this unfortunately was not appreciated and caused needless loss of blood.

Our method of anastomosis has been of the standard pattern—continuous 5/0 Deknatel silk suture being used throughout. The suture was usually interrupted in 2 places.

One other factor needs attention. After the anastomosis, in most cases, a kink appears to be present at the root of the subclavian artery where it takes off from the aorta. This can be helped to some extent by mobilising the aortic arch and dissecting the adventitia over the arch as far as is practicable.

Postoperative Course

There are two things to be particularly afraid of in the postoperative course—hyperpyrexia and congestion of the lungs leading to oedema. Presumably the latter is more likely to occur if the stoma of the anastomosis is unusually large and is associated with increased left ventricular strain. Three of our cases died from this complication.

TABLE I—SHOWING ANALYSIS OF 10 CASES SUCCESSFULLY OPERATED ON

S. No.	Name	Date of operation	Period of follow-up years	Clinical state	Cyanosis	Clubbing	Activity
1.	B.D.	5- 3-55	3- 6/12	Good	Almost absent	Much improved	Active
2.	D.M.	15-10-55	3	Excellent	Almost absent	Much improved	Very active
3.	H.	3-11-55	2-10/12	Good	Slight	Improved	Active
4.	N.G.B.	25-11-55	2-10/12	Excellent	Slight	Improved	Active
5.	S.B.	8-12-55	2- 9/12	Excellent	Almost absent	Much improved	Very active
6.	R.	16- 5-57	†	—	—	—	—
7.	N.P.*	28- 5-57	1- 5/12	Fair	Slightly improved	Unchanged	Active
8.	A.B.*	22- 8-57	1	Unchanged	Unchanged	Unchanged	Unchanged
9.	S.B.	3-12-57	10/12	Excellent	Slight	Much improved	Very active
10.	T.C.	11- 2-58	6/12	Good	Slight	Improved	Active

* Barrett's operation. † Death 1 month after operation from meningitis.

RESULTS

The better the anastomosis, the earlier does the new continuous thrill and murmur appear over the precordium with consequent improvements in the patient's clinical condition and colour. Of the 10 cases in our series where satisfactory shunt could be performed, 7 are doing well and are relatively free from symptoms (Table 1). There has been significant improvement in their clinical status, exertional disability and improvement in cyanosis. One girl of 13 years old (D.M.) is to all appearances of normal colour and is more or less normal so far as ordinary activities are concerned.

How long this improvement is going to last is a moot question. There is no doubt that this operation instead of lessening the anatomical abnormality adds one more to the existing four, with consequent increase of the left ventricular work. It has been shown also that there is some enlargement of the heart few months or years after both a direct operation as well as following a shunt procedure. However, the patients seem to tolerate the increased burden fairly well. There is however need for cautioning them from undertaking excessive strain in their newly found relative freedom. In the forseeable future, it would be possible to radically correct the intracardiac defects under vision. Until such time, there is no doubt that the indirect operations confer estimable benefit on these severely disabled patients.

SUMMARY AND CONCLUSION

This paper summarises the experiences gained in detailed study of 22 congenital cyanotic type of cardiac abnormalities. 14 of these cases were operated on. The importance and usefulness of the various diagnostic criteria are commented upon.

In the majority of the cases, the Blalock type of shunt procedure through a left-sided thoracotomy approach was performed. The difficulties met with during this operation are mentioned. The postoperative state and the late follow-up status are described.

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BENIGN PNEUMOCONIOSIS IN MONKEYS IN INDIA

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Goyal (1958) reported the presence of early pneumoconiosis in the apparently normal population of Rajasthan. It was, therefore, of interest to determine whether laboratory animals were also showing the same type of lesions.

MATERIAL

The lungs of a large number of apparently normal rabbits, guinea-pigs and white rats in Rajasthan have not revealed the existence of

pneumoconiosis. The lesions in the other medium-sized animals were as follows:

GOATS: Out of the four goats examined, the one aged seven months did not show any granulomatous lesions, the others aged 1-4 years had a few dust cells or dust particles in the alveolar walls, varying degrees of interstitial pneumonitis were present in all these cases.

SHEEP: Seven stock sheep aged 1-2 years were also examined, in addition to the presence of different degrees of interstitial pneumonitis, four had a few dust cells or dust particles in the alveolar walls.

PIGS: The lungs of a pig aged 2-2½ months old showed slight granulomatous lesions, but no dust particles in the alveolar walls. The lungs of another five pigs aged 5-8 months showed small foci of lymphocytic infiltration, only a few dust cells or carbon particles were present in the alveolar walls.

CATS: The lungs of a cat aged 9-10 months revealed the existence of marked interstitial pneumonitis, but no dust cells or dust particles were discernible. Whereas the lungs of four medium-sized cats showed the presence of rare particles of dust and/or carbon in the alveolar walls.

When the sections of lungs were examined with chemical polaroids for the presence of doubly refractile particles of silica, the silica particles were only scantily found in the lungs of goats, sheep, pigs and cats.

DOGS: An examination of the lungs of twelve stock dogs showed varying degrees of granulomatous lesions or marked interstitial pneumonitis in eight of them. Four dogs who had definite granulomatous lesions showed the presence of moderate to large amounts of silica associated with dust particles. The silica and dust particles were present either in alveolar walls or in the peribronchial tissue. It appears that the dogs which had subacute or chronic inflammatory lesions leading probably to lymphangitis could not dispose of the dust and silica particles which consequently accumulated.

MONKEYS (*Macacus rhesus*): The examination of lungs of eight monkeys caught either fresh from the jungle (Jaipur District) or kept in cages for varying periods revealed the following lesions:

The lungs of a baby monkey weighing about 3 lb. showed the presence of greyish white plaques varying in extent and number (from 1 to several), only one monkey had in addition a few pinpoint greyish black foci, a variable degree of emphysema involving also the borders was discernible. On microscopic examination, granulomatous foci containing dust cells and lymphocytes were generally in evidence. A few polymorphonuclears were also encountered in a minority of cases. The other lesions observed were interstitial pneumonitis, presence of dust cells in alveolar walls, a peri-arteritis and endarteritis in the majority of cases. Two of the monkeys showed the presence of central necrosis in the granulomatous lesions.

Goyal (1958) reported the existence of early pneumoconiosis in the non-industrial population of Rajasthan and not in the rest of India, it was therefore considered advisable to examine the lungs of monkeys obtained from non-desert regions. The lungs of two monkeys obtained from Lucknow and three from Calcutta were also examined. Similar types of lesions were observed in these cases.

The examination with chemical polaroids revealed the presence of moderate to large amounts of silica particles associated with dust or carbon. The silica particles were less numerous in the granulomatous lesions. The size of the silica particles did not generally exceed 5 μ, but particles of 10 microns in length were occasionally encountered.

HUMAN LUNGS FROM OUTSIDE RAJASTHAN

The lungs of 16 human beings from outside Rajasthan were obtained through the courtesy of Colonel Bardhan and Colonel Wanchoo from the Armed Forces Medical College, Poona. The lungs were from those cases who did not have any obvious lesion of the lung. No silica particles associated with carbon or dust were found in 3 cases, they were only scantily present in eleven cases. In the fifteenth case, they were plentiful only in certain areas. In the sixteenth case, they were plentiful in a large number of foci. The last two cases had fairly marked fibrosis especially the latter. The other lesions encountered in these cases in varying degree were: congestion of alveolar walls, emphysema, patchy interstitial pneumonitis (slight to marked) and fibrosis. Granulomatous lesions were not encountered. It thus appears that chronic inflammatory lesions probably cause lymphatic obstruction and lead to the accumulation of extraneous particles.

Goyal (1958) reported the absence of collections of silica particles in the lungs of eight medico-legal cases. Heppleston (1958) observed that acute pneumonia facilitated dust elimination in cases of pneumoconiosis. All the medico-legal cases had active hyperaemia in varying degree, the small number of silica particles, if present in these cases could easily have been mobilised due to the presence of acute congestion.

Illustrative Cases

The following cases are illustrative:

EXPT. 211: Street dog: On naked eye examination, the lungs showed patchy congestion, few greyish white plaques and emphysema. Microscopically, marked granulomatous infiltration with lymphocytes, macrophages and a few plasma cells (peribronchial and perivascular), focal emphysema, thickening of vessel walls, presence of polymorphonuclears and dust cells in the alveolar walls. Under the polaroids, doubly refractile particles plentiful along with dust particles in alveolar walls.

EXPT. 216: Stock dog: On naked eye examination, the lungs showed areas of emphysema and a small area of congestion. Microscopically, marked patchy interstitial pneumonitis, dust cells abundant (mostly perivascular and peribronchial) and localised areas of emphysema.

EXPT. 212: Big sized healthy looking monkey. On naked eye examination, lungs showed greyish white plaques, areas of emphysema, pale borders and slight congestion. Microscopically, slight interstitial pneumonitis, isolated foci of granulomatous lesions containing dust (Fig. 1A, *vide* Plate) particles (perivascular and peribronchial in general), a few small vessels thickened (Fig. 1B, *vide* Plate). Under the polaroids, moderate amount of silica particles in association with dust present (M.P. Fig. 1, A. B. C., *vide* Plate).

EXPT. 281: Stock monkey (medium size). Naked eye, the lungs showed one greyish white nodule, patches of slight congestion alternating with pale raised areas, patches of intense congestion. Microscopically, foci of lymphocytic infiltration with dust cells (Fig. 2, *vide* Plate) and few polymorphs (mostly perivascular), foci of fairly marked emphysema, collection of dust cells in alveolar walls and irregular thickening of arteriolar walls.

EXPT. 350: A small sickly stock monkey. Naked eye, lungs showed a large number of greyish white nodules, inguinal and mesenteric lymph nodes were slightly enlarged. Microscopically, big foci of bronchiolitis with collapsed bronchiolar walls, foci of lymphocytic infiltration plus dust cells and carbon particles, marked emphysema and moderate thickening of vessels (Fig. 3, *vide* Plate).

Discussion

The presence of early pneumoconiosis in human beings, monkeys and to some extent the dogs is probably due to the fact that the clearing mechanism of the lymphatics is comparatively less efficacious than in the case of the small laboratory animals, e.g., guinea-pigs, rats and rabbits. Silica is widely distributed in nature, forming 70 per cent of the earth's crust (Meikeljohn, 1956). Traces of silica are likely to be present in the atmosphere even in non-desert regions and can accumulate to some extent in the lungs of monkeys and man.

In a preliminary set of experiments, white rats were made to inhale dust for a few weeks in an inhalation-chamber, when there was an intercurrent chronic or subacute infection, then the lesions were much more marked. It was probably due to the fact that the lymphangitis produced led to the retention of the extraneous irritants.

Summary

The presence of early pneumoconiosis in monkeys and to some extent in dogs has been reported from the apparently normal fauna of India. These animals have probably less efficient lymphatic drainage than rabbits, guinea-pigs and white rats.

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INCIDENCE OF Rh-NEGATIVE RATE AND NATURE OF PHENOTYPES AMONGST THE BENGALEES

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Data on the incidence of Rh-negative rates in India as available up to date have not yet been representative of the different parts of the country. The rates reported vary from 2 to 10 per cent.

Using immunised rabbit antisera, Greval and Roy Chowdhury (1943, 1946) reported the Rh-negative rates of a small number of persons residing in Calcutta. In the first series of 200 cases the incidence of Rh-negative was 10 per cent and in the second series 7·8 per cent. In 1944 Dasgupta, tested 240 samples of blood with immunised rabbit's anti-Rh sera. He collected samples of

blood from different communities in Calcutta and found that 10 per cent of the persons belonged to Rh-negative type. Khanolkar and Sanghvi (1945) made a survey study of Rh-negative rates amongst the people of different communities in Bombay. The blood from 100 Indians were tested against known human anti-Rh sera. One Parsee and one Indian Christian were found to be Rh-negative. The rest were all Rh D-positive.

Ranganathan, *et al* (1946) examined 145 samples of blood for the determination of Rh D antigen with human anti-Rh sera and according to their findings, the negative rates amongst the blood donors in Madras Blood Bank was 4·1 per cent. Ranganathan *et al* (1948) repeated the work on 294 cases and found the Rh-negative rate amongst South Indians to be 8·5 per cent. The same workers further determined the phenotypes of 267 samples of blood amongst South Indians with anti-D and anti-C serum. They found cD 1·8 per cent, CD 90 per cent, Cd 2·2 per cent and cde 6 per cent. Mazumdar (1948) examined 116 samples in the population of Lucknow and found 5·43 per cent of the people belonged the Rh-negative type. Sanghvi and Khanolkar (1949) examined 200 samples of blood of Koksnath Brahman and Chandraseniya communities in Bombay. They obtained the Rh-negative rates as 3·5 and 10 per cent respectively. Row (1952) determined the Rh-negative rates amongst South Indians. He tested 132 samples of blood for presence of Rh-D antigen and found 3·79 per cent belonged to Rh-negative type. Pathak (1954) examined 224 samples of blood, both from male and female individuals of the Punjab with human anti-Rh sera. He found Rh-negative rates amongst the females as 12·28 per cent and amongst the males 7·49 per cent respectively.

Review of literature shows that there is scope of collection of more data on Rh typing in India.

Material and Method

Samples of blood were obtained from a series of 1,435 subjects consisting of blood donors of Blood Bank at Calcutta, patients from different hospitals referred for transfusion reaction or for the possibility of Rh incompatibility. The ages of these subjects varied from 20 to 55 years. In addition samples were obtained from cord blood. All the subjects were Bengalees of both sexes, mainly males.

The presence of Rh- or D-antigen was determined by the slide conglutination method. One drop of anti-Rh slide testing serum of Ortho Laboratory was mixed with one drop of oxalated sample of blood (50 per cent suspension) on a slide warmed to 37°C. The results were recorded within 2 to 3 minutes.

All the negative results were confirmed by further testing of the samples with complete or bivalent anti-Rh D serum by the tube method. To 2 drops of 2 per cent suspension of washed unknown cells placed in a small test-tube ($3'' \times \frac{1}{4}''$) one drop of anti-D saline active (Ortho) serum was added. The tubes were placed in the incubator at 37°C for 1 hour. These were then centrifuged at 500 revolutions per minute for 1 minute. The results were read both macroscopically and microscopically.

• 380 samples were in addition tested with known anti-C and anti-E sera in test-tube according to standard technique.

Results

Results of test with anti-D sera are shown in Table 1.

In this series there were 76 D-negative and the frequency of D-negative was therefore 5·3 per cent.

Table 1—Showing Rh-negative Rates Amongst the Bengalees

Total number of samples examined	Rh-positive		Rh-negative	
	No.	Per cent	No.	Per cent
1,435	1,359	94·7	76	5·3

For a comparative study the results obtained by different workers in the different parts of India are presented to Table 2. The nature of Rh phenotypes amongst the Bengalees has been shown in Table 3. The incidence of dominant and recessive genes amongst Bengalees are shown in Table 4.

Conclusion

The incidence of Rh-negative rates varies in different races and in different countries. This variation is very wide, ranging from 0 per cent in Burmese and Indonesians to 42·25 per cent amongst the Basques.

This incidence of the Rh-negative rates from the data in hand at present varies from 2 to 10 per cent in the different peoples of India. In the present series, the rate appears to be of the order of 5·3 per cent in the Bengalees. This corresponds well with the values so far presented by other

TABLE 2—SHOWING COMPARATIVE ANALYSIS

S. No.	Group tested	Authors and year	No. of sampes tested	Rh+ per cent	Rh− per cent
1.	Indians (Calcutta)	Greval and Roy Choudhury (1943)	200	90·00	10·00
2.	Indians (Calcutta)	—do— (1946)	200	92·00	7·80
3.	Indians (Calcutta)	Das Gupta (1944)	240	90·00	10·00
4.	Bengalee (Calcutta) ... ... (Present series)	Roy *et al* (1958)	1435	94·71	5·29
5.	Indians (Bombay)	Khanolkar and Sanghvi (1945)	100	98·00	2·00
6.	Koksnath Brahmans (Bombay) ...	Sanghvi and Khanolkar (1949)	200	96·5	3·5
7.	Chandraseniya Prabhus (Bombay)	—do— (1949)	200	90·00	10·00
8.	Indians (Madras)	Ranganathan *et al* (1946)	145	95·86	4·14
9.	South Indians (Madras) ...	Ranganathan *et al* (1948)	294	91·50	8·50
10.	Indians (Lucknow)	Mazumdar (1948)	116	94·57	5·43
		Pathak (1954)	224	92·51	7·49
			(male & female)	87·72	12·28
12.	South Indians (Madras) ...				
11.	Indians (Punjab)	Row (1952)	132	96·11	3·89

TABLE 3—SHOWING PHENOTYPES AMONGST THE BENGALEES
(Samples tested with anti-D, anti-C, anti-E sera)

S. No.	Rh type	Number	Per cent
1.	CD ee	267	70·27
2.	cc DE	40	10·53
3.	CDE	39	10·26
4.	ccDee	12	3·16
5.	Cddee	1	0·26
6.	ccdd E	—	—
7.	Cdd E	1	0·26
8	ccddee	20	5·26

TABLE 4—SHOWING INCIDENCE OF DOMINANT AND RECESSIVE GENES AMONGST THE BENGALEES

Type of gene		Number	Per cent
C	... ...	308	81·05
cc	... ...	72	18·95
	Total	380	100·00
D	... ...	358	94·21
dd	... ...	22	5·79
	Total	380	100·00
E	... ...	80	21·05
ee	... ...	300	78·95
	Total	380	100·00
CD	... ...	306	80·53
Cdd	... ...	2	0·53
ccD	... ...	52	13·68
ccdd	... ...	20	5·26
	Total	380	100·00

workers. With regard to methodology there is a point for note.

From the data on Rh phenotypes it appears that the incidence of 'CD' is quite high amongst the Bengalees. From the data in Table 4 it appears that E gene is mostly recessive. The C and D genes are mainly dominant. The C gene gets dominant in association with D but rarely alone. D gene can get dominant itself irrespective of gene C.

SUMMARY

In a series of 1,435 subjects the incidence of D-negative was 5·3 per cent. The series, however, represents a selected group. The incidence of 'CD' type was found to be highest. C and E antigens were dominant usually in association with D.

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INCIDENCE OF HUMAN ANTHRAX IN NORTH KANARA

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INTRODUCTION

Incidence of human anthrax in Supa, a village in the North Kanara district in Mysore State was preceded by a ravaging anthrax epizootic in the animal population including cattle and forest animals such as bisons, etc. The first case of human anthrax was detected in Supa dispensary on the 10-6-1957 about one month after the appearance of cattle anthrax.

Anthrax is likely to remain endemic in this tract in future affecting both the human as well as the animal population, because many of the carcasses of animals dying of anthrax were thrown out on the open fields. If the carcasses are buried or burnt, the bacilli are destroyed, but if the bacilli were to get access to open air which contains oxygen, they form spores which are very resistant and can survive for years together remaining a potential danger of infection for years to come.

All the five cases of anthrax treated in Supa dispensary were of the cutaneous variety. Due to lack of laboratory aids, cases of pneumonic and intestinal anthrax might have been missed, if at all they have occurred.

DISCUSSION

Aetiology—The source of infection is the anthrax-affected cattle. The possible carrier, in these cases of cutaneous anthrax, is a big fly called tabanus (Fig. 1), which resembles externally a housefly but is far bigger in size being about one inch in length.

This fly makes its appearance in this area about the month of April and disappears after the start of the monsoon. It attacks the animal and sucks its blood. Such a fly was caught while sucking the blood of an animal, and was dissected eighteen hours later. There was blood in the stomach and a smear from this blood showed anthrax bacilli as investigated by the Veterinary Disease Investigation Officer of Bangalore.

FIG. 1—TABANUS FLY
(natural size—½—1")

All the 5 cases treated were adult males. In all, the exposed parts of the body were affected. Of these, three persons gave definite history of a sting by a tabanus fly. All of them were agriculturists by occupation coming constantly in contact with cattle. The cattle belonging to these 5 persons had died of anthrax.

The diagnosis was not difficult as cattle anthrax was prevailing. In three of the cases there was definite history of a sting by tabanus fly. Clinically there was umbilicated eruption, associated with itching, surrounded by a zone of induration with enormous and extensive swelling of the affected part accompanied with or without fever.

Smears of only two of the cases could be studied. One was positive and the other was negative for anthrax bacillus. The smear-negative case has not been included in this series.

Pneumonia is the usual and common complication. In 4 of the 5 cases pneumonia was present. In 2 of the cases central nervous system was involved as was manifested by their semiconscious condition.

Treatment—Penicillin was the drug of choice. It had to be administered in heavy doses. In very toxaemic cases 2,800,000 units of penicillin divided in two doses were administered daily until the toxaemia and fever subsided which took about two to three days. The fever subsided by lysis in all the cases. Subsequently procaine penicillin 400,000 units was injected twice daily until the whole eruption was covered with a scab and the swelling completely disappeared, which took about eight to ten days.

Only in 1 case the scab has separated leaving a very shallow healthy ulcer. In the remaining

cases the scab is still persisting. And from the slow rate of healing of the eruption, it would appear to take many more days for the skin over the eruption to be normal.

Case Notes

Case 1—R.L., aged 36, seen on 10-6-57. There was no definite history of any sting. There was umbilicated eruption on the left deltoid region with swelling of the left arm and left side of the chest for 3 days, associated with fever, body ache and headache. There was also moderate toxaemia and the patient developed pneumonic signs on the third day.

Case 2—R.S., aged 65, seen on 11-6-57. Had a sting by tabanus fly 3 days ago. Smear was positive for anthrax bacillus. Eruption on the right thigh with swelling of the whole right lower extremity. There was high fever and severe body ache.

Case 3—K.S., aged 45, seen on 13-6-57. There was no definite history of sting by a fly. Umbilicated eruption with swelling of the leg, gradually enlarging for 15 days; no fever, ambulatory.

Case 4—G.B., aged 40, seen on 17-6-57. History of sting by a tabanus fly on the left popleteal region. Umbilicated eruption with swelling of the whole left lower extremity and fever of 5 days' duration. Cough since 2 days. His general condition was very poor on admission as he was semiconscious. Both lungs were congested.

Case 5—K.C., aged 23, seen on 20-6-57. There was no definite history of sting by a fly. Umbilicated eruption on the right elbow with swelling of the right arm and axilla and of the right side of the chest of 3 days' duration. The right axillary lymph node was markedly enlarged and tender. The patient developed pneumonia.

Acknowledgments

My thanks are due to the Director of Medical Services, Government of Mysore, for his permission to publish the case reports. My thanks are also due to Shri G. R. Hedge, Veterinary Officer, Supa, for the diagram of the tabanus fly.

PRACTITIONERS' SERIES

ABSCESS AND ITS MANAGEMENT

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Introduction

The early diagnosis and adequate treatment of an abscess is one of the most urgent and by no means one of the most easy, problems met with in general medical practice. Abscess spares no part of the body and involves the extremities, parietes, brain, bones, lungs and the pleural and peritoneal cavities and viscera.

Types

An abscess is a localised collection of pus, which has formed as a result of bacterial infection and become localised by the inflammatory reaction of the surrounding tissues, the pus formed by the dead tissue and organisms being enclosed by a wall of leucocytes and tending to point along the line of least resistance as its tension increases.

Three types of abscesses are described: (1) Acute or the pyogenic abscess which is the most common lesion encountered in practice. (2) The pyaemic abscess which is usually multiple and results from septic emboli in pyaemia cases. (3) Cold abscess which usually results from tuberculous infection of the glands and bones. An analysis of a series of 508 cases of abscess recorded from B. K. Hospital, Faridabad, included 465 cases of pyogenic abscess, 15 cases of cold abscess, 10 of multiple pyaemic abscess, 2 stitch abscess and 16 carbuncles.

Acute or Pyogenic Abscess

An acute abscess results from invasion of the tissues by pyogenic organisms. It may occur at the original site of infection of the body (primary) or at some distant point, usually the adjacent lymph glands (secondary). Abscess formation is usually established within five to seven days of the development of inflammatory signs after the infection.

In an analysis of 465 cases of acute abscess formation at B. K. Hospital, Faridabad, over half of the cases (62 per cent) pyogenic abscess involved the extremities. The trunk was affected in about one third of cases (32·2 per cent) and the head and neck was involved in only 15·34 per cent of cases. The high incidence of abscess in the hands and feet may be attributed to the fact that they were the parts put to active use most of time and were therefore more prone to trauma and infection. Breast abscess was common in suckling mothers; the incidence of abscess of the buttock and arm increased because of the popularity of injection treatment and these being the sites of intramuscular injections. Abscess of groin, axilla, iliac region and neck occurred due to secondary infection of the lymph glands of these areas due to a primary focus of infection in the area they drain. Perineum was the site of abscess formation because of its nearness to the urethra and anus, and the difficulty in maintain-

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ing cleaniness of the parts. Abscess of the thigh, leg, jaw and mastoid region were usually associated with the inflammation of the underlying bones.

Signs and symptoms—The signs are local heat, redness, swelling, pain and loss of function of the part of the body involved. As the process advances to abscess formation these signs increase and the pain becomes throbbing in nature. The pain is very acute if the affected part is dependant, e.g., the breast, scrotum, hand in the hanging position. Support to the affected part will decrease the acuteness of the pain. The lymph glands draining the area are usually enlarged and tender. When the abscess forms the red area gets localised. Swelling is at first brawny and oedematous. When softening has occurred fluctuation becomes manifest. Swelling and redness may not be apparent if suppuration is situated deep to a dense fascial plane, e.g., under the parotid fascia. Increasing superficial oedema is characteristic of deep pus, e.g., in acute mastitis and ischiorectal abscess.

The constitutional symptoms of malaise and fever vary depending upon the size and site of the abscess and the tension within the cavity.

Management—Abscess can sometimes be prevented if measures which help in the resolution of the inflammatory process are taken in time when an abscess threatens to form. The process of abscess formation is aborted by general and local rest, elevation of the affected part, application of cooling lotions, general constitutional treatment and chemotherapy. A comparatively fewer number of inflammations lead to abscess formation since the advent of chemotherapeutics and antibiotics.

Sulphonamides, penicillin or broad spectrum antiboitics should be given. They convert a generalised infection into a local one, help in the process of healing to proceed and relieve the patient from the constitutional symptoms.

Evacuation of pus is the general rule. Whenever and wherever there is a collection of pus, it must be drained out. When the pus has been removed from the abscess cavity the walls of the cavity meet and the healing of wound takes place by granulation.

Superficial abscesses are drained by a free incision. In regions where pus lies deep and free incisions are fraught with danger to important anatomical structures, e.g., axilla, parotid gland and the thigh, the method of Hilton is used. This consists of incising the skin and fascia and opening the abscess by thrusting a pair of sinus forceps into the cavity. By separating the blades of the forceps a sufficiently large opening can be made to insert if necessary a finger, followed by a drainage tube. Aspiration and putting in penicillin solution in the abscess cavity through the aspirating needle may also be done. The process is repeated till the abscess dries up and healing takes place.

Incision and drainage—The incisions must be adequate in size, of an equal length throughout their whole depth, and made at the most dependant part of the abscess cavity in order to provide free and efficient drainage for the pus. The most dependant part refers to the lowest portion of the inflamed area with the part in that position of rest in which it will be maintained by the patient and the surgeon after incision.

In opening all abscesses, care should be taken to cut parallel to and not accross important structures.

Thus abscesses in the limbs are opened by a longitudinal incision parallel to the course of vessels and nerves, and in the axilla parallel to and midway between the axillary folds. In the breast the incision is made in a direction radiating from the nipple, i.e., along the direction of the ducts and not across them. When practicable incisions should be made along the natural creases of skin in order to avoid ugly scars and keloids.

In treating deep abscesses among important structures, e.g., in the axilla, thigh, Hilton's method of incision of abscess should be used. If deep-seated matter is suspected but cannot be satisfactorily made out, an aspirating needle or a trocar and canula may be used to explore, and incision made after some pus comes out as the content of aspiration.

An abscess should be incised as soon as it has formed but not prematurely. Premature incision is dangerous as it may hinder the localisation of the inflammatory process by opening up fresh planes to the spread of infection. Throbbing pain, localised swelling and redness, flucuation and increasing superficial oedema are all evidences of pus formation. *There are three situations in which incision should be made early* and fluctuation should never be awaited ; they are the breast, the ischiorectal fossa and the pulp of the finger. Overlying dense layer of fat and cellular tissues render the fluctuation late in these areas.

When an abscess has been opened and the pus evacuated, a bleeding granulation tissue remains behind lining the abscess cavity. If nothing is done to check this bleeding, the abscess cavity will again be full of blood which turns into pus

and hinders the process of healing by granulation tissue, by allowing no space for the process of repair to proceed.

In some sites this bleeding may be so large that the patient may die of haemorrhage and shock. The procedures which are adopted to stop this bleeding at the various sites of abscess formation are described below:

(*i*) When an abscess lying along a bone (e.g., the thigh, arm, fingers) has been opened, the after bleeding can be stopped by a pressure bandage, the bone offering the necessary resistance to obliterate the abscess cavity.

(*ii*) In an abscess which lies at a site between two bones, e.g., the forearm or leg, if we apply a pressure bandage to stop after bleeding it wont work if the abscess cavity lies between the two bones. Such an abscess cavity is packed tightly with gauze, which is removed after 48 hours. By that time the bleeding has stopped and the wound is dressed without packing.

Once the pus has been evacuated the area should be treated by methods applicable in the treatment of the earlier stages of infection. Under such conditions closure of the wound and repair will not be long delayed though the purulent discharge may continue for some days. In addition to rest to the patient, the parts like scrotum and breast require supportive bandages and the limbs splintage in order to ensure local rest. Use of chemotherapeutic agents may be necessary in some cases.

Persistance of a discharging wound (sinus) after incision of an abscess is usually due to inadequate drainage, due either to the incision being small, or not placed at the most dependant point of the area. Advantage should be taken of the force of gravity in drainage of the abscess by keeping the patient in suitable position after incision of the abscess in order to encourage drainage. Premature closure of an inadequate incision with recrudescence of the inflammatory trouble, is best dealt with by a further adequate and suitably placed opening.

Pyaemic Abscess

Pyaemia is a condition due to circulation in the blood stream of infective emboli composed of masses of bacteria, infected clots of fibrin or blood or vegetations in conditions such as infective osteomyelitis, arthritis, infestive phlebitis and bacterial endocarditis. Multiple abscesses develops in pyaemia in scattered areas and organs of the body due to lodgement in the capillaries of the circulating infective emboli. These abscesses are commonly painless and are sometimes accidentally discovered while sponging the patient.

Clinical manifestations consist in addition, abscess formation, features of infection, repeated rigors and intermittent rise of temperature and signs of toxaemia.

Treatment consists in treating the primary infective condition with chemotherapy and antibiotics, and general measures consisting of strict bed rest, nutritive diet, alkaline mixture, endeavour to prevent further emboli from reaching the blood stream, and timely drainage of secondary abscesses. One should be always on the look out to detect any new abscess formation in various parts of the body including the vital organs like the heart, brain and the liver.

Cold Abscesses

They usually result from tuberculous infection of glands and bones. The commonest examples met with in general practice, are the cold abscesses as a result of tuberculous lymphadenitis of the neck and the axillary glands.

The treatment consists primarily in the treatment of the tuberculous condition by anti-tuberculous drugs, nutritive diet, judicious surgical intervention and rest in plaster as the case may be. Open drainage should be limited to the cases when it is essential where conservative measures have failed.

CASE NOTE

ANEURYSM OF THE PULMONARY ARTERY

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Aneurysm of the pulmonary artery is very rare and that of the artery and of its main branches is rarer still. At the Mayo Clinic on the basis of necropsies the ratio of pulmonary aneurysm to other diseases was 1 : 17,545 (Deterling and Clagett, 1947). Boyd and McGavack (1939) collected from the literature 139 cases of aneurysm of

the pulmonary artery and in 111 of them the diagnosis was proved at necropsy.

Deterling and Clagett (*loc. cit.*) gave an analysis of 36 cases of aneurysm of the pulmonary artery including one of their own verified by necropsy. These cases were exclusive of the series reported by Boyd and McGavack in 1939. Out of the 36 cases only in three the aneurysm was bilateral. They pointed out that in this disease both sexes were almost equally affected, the age incidence was however lower than that of aortic aneurysm.

Syphilis was the aetiological factor in more than a third of the cases, congenital cardiovascular anomalies also played a major role. A persistent ductus arteriosus was present in more than 20 per cent of the cases. Less common aetiological factors were subacute bacterial endarteritis, atheroma and trauma.

Exertional dyspnoea was the commonest manifestation. Other associated symptoms were cough, haemoptysis and chest pain. Cyanosis and oedema were late manifestations and were due to cardiac failure or congenital anomalies. A harsh systolic murmur was heard over the pulmonary area in 55 per cent and a thrill in 23 per cent of the cases. In a few patients a diastolic murmur was also heard in the same area. The right ventricle was usually enlarged. Electrocardiograms showed right ventricular preponderance.

In aneurysm of the pulmonary artery, characteristic findings are usually obtained on radiological examinations and most cases are diagnosed pre-mortem on them. Generally, a discrete rounded mass is seen in the perihilar region, separate from the aortic shadow. Oblique views show that the mass is beneath the arch of the aorta and anterior to the aortic shadow. It may show expansile pulsation and in some cases 'hilar dance' may be observed. Sometime its wall may be calcified. There have, however been cases of aneurysm of the pulmonary artery confirmed by necropsy, in which no pulsation had been seen on roentgenoscopy (Deterling and Clagett, 1947). Angiocardiography would be of additional help in the diagnosis of the condition (Robb and Steinberg, 1940).

The average age at death of the patients was 42·8 years (Boyd and McGavack, 1939).

Jelinek and Owen (1958) reported a case of bilateral pulmonary artery aneurysm associated with persistent ductus arteriosus. The case was diagnosed on radiological findings which consisted of a large, dense, rounded opacity situated at the level of the pulmonary cone in the postero-anterior and lateral views. Expansile pulsation was not demonstrated. The diagnosis was confirmed at necropsy. The age of the patient at death was 44 years. They thought that the aneurysm was secondary to congenital persistence of the ductus arteriosus.

We are reporting below a case of aneurysm of the pulmonary artery and of its main branches.

Case Report

L. B. B., male, aged 50 years, a manual worker, was admitted in Nilratan Sircar Medical College Hospital on 17-2-1958 with the complaints of dyspnoea on exertion and cough for last five years. He had two bouts of haemoptysis, one about 1½ years ago and another in December 1957. He sustained a minor injury in the head and chest about two years ago. There was no significant personal history. At the time of admission or during his stay in the hospital for about two months he had practically no symptoms. As some suspicious shadows were found on radiological examination of the chest he was admitted in the hospital for further investigations.

He was well built and looked apparently healthy. There was no anaemia, cyanosis, jaundice or oedema. The neck veins were not engorged. Pulse was 80 and respiration 18 per minute. Blood pressure was 140/90 mm. of Hg. Apex beat of the heart was not palpable. No other pulsations were noted in the precordium. The pulmonary second sound was accentuated and split. The splitting was not widened on deep inspiration. No murmur was heard over the heart. Breath sounds were markedly diminished over the left upper part of the chest. No adventitious sounds were heard. The liver and spleen were not palpable. No abnormalities were found in other systems. Hb. 11·6 g. per cent, red cells, 4 million per c.mm., white cells 9,100 per c.mm. with neutrophils 70 per cent, lymphocytes 28 per cent and eosinophils 2 per cent. No abnormalities were detected in the urine and stool. E.S.R. (Westergren) was 17 mm. per hour. Wassermann reaction of blood was positive. Electrocardiograms suggested right ventricular preponderance and strain (Fig. 1).

Radiological examination of the chest showed aneurysmal dilatation of the main trunk of the pulmonary artery and its right main branch. Some degree of dilatation of left main branch was also seen incorporated in the convexity of main pulmonary artery. The aortic knuckle was hypoplastic. The transverse diameter of the cardiac shadow was increased. Apart from some prominence of the second and third divisions of the right branch of the pulmonary artery above the right hilum, the vasculature of the lung fields was normal (Fig. 2, *vide* Plate). A deep impression and posterior deviation of the oesophagus produced by the pulmonary artery and its left main branch was seen in the right oblique view (Fig. 3, *vide* Plate). In the left oblique view the normal translucency of the aortic window was completely filled up and opacified by the dilated left main branch of the pulmonary artery and the left main bronchus was encroached by this vessel (Fig. 4, *vide* Plate). There was no expansile pulsation in

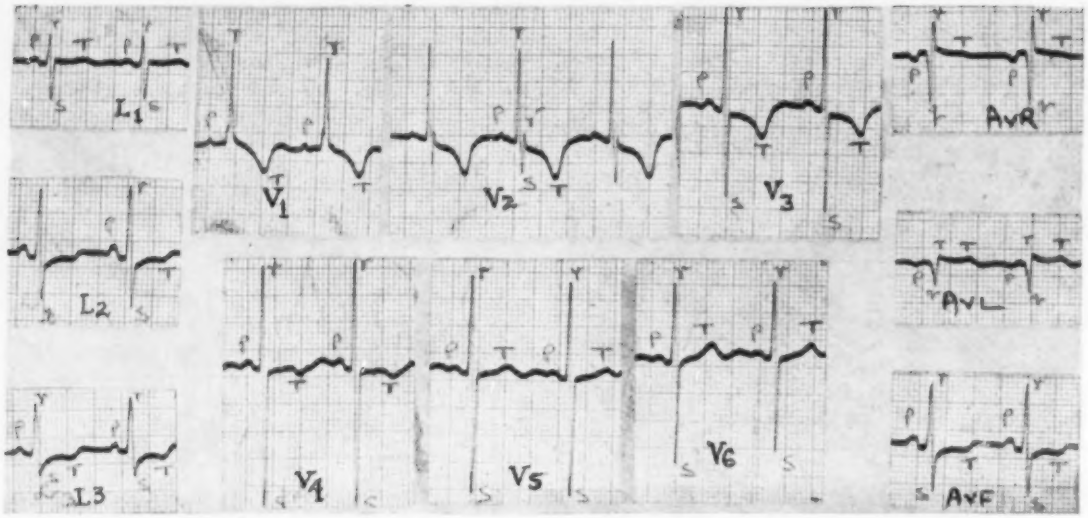

FIG. 1—SHOWING RIGHT VENTRICULAR PREPONDERANCE AND STRAIN.

the abnormally dilated vessels. Angiocardiography was not done.

DISCUSSION

Detection of two discrete shadows in the hilar regions of the lungs separate from the aortic shadow suggested the possibility of pulmonary aneurysm. Exertional dyspnoea, cough and haemoptysis are characteristic symptoms of this disease. No pulsations were noticed in the aneurysms, but it has been suggested that formation of blood clot in the aneurysmal sacs may prevent pulsations.

The shadows in the hilar regions of the lungs were separate from the aorta, hence it could not be a case of aortic aneurysm. In atrial septal defect E.C.G. usually reveals right bundle branch block and screen examination shows 'hilar dance'. Both the features were absent in the present case.

Primary pulmonary hypertension is a rare disease and sex incidence is predominantly female (Wood, 1956). Symptoms include dyspnoea, angina pectoris and syncopal attacks. Tricuspid pansystolic murmur, a closely split second heart sound with accentuation of the pulmonary element and a Graham Steell pulmonary incompetent diastolic murmur are usually heard. The electrocardiogram shows a P pulmonale and gross right ventricular preponderance. X-ray shows a small aorta, dilated pulmonary artery, enlarged right ventricle and atrium and light peripheral vascular markings of the lungs. In the case under discussion there was no history of anginal or syncopal attacks. Auscultatory findings over the heart were negative, and the E.C.G. did not show P pulmonale.

As no congenital cardiac lesions were detected and the Wassermann reaction of the patient's blood was positive, syphilis was probably the aetiological factor in this case.

SUMMARY

Aneurysm of the pulmonary artery is a rare clinical condition. A short resumé of the literature and of the clinical features of the disease has been given.

A case of aneurysm of the pulmonary artery and of its main branches has been described. It was probably of syphilitic origin.

The patient at the age of fifty maintained fairly good health and his symptoms were not much disabling.

ACKNOWLEDGMENTS

We are grateful to Dr. A. K. Dutta Gupta, Principal and Superintendent, Nilratan Sircar Medical College and Hospitals, for the permission to report the case. Our thanks are due to Dr. P. K. Chatterjee, Divisional Medical Officer, Eastern Railway, for referring the case to us and to Dr. C. B. Chatterjee, Senior House Physician to the Professor of Medicine, for the help in the investigation of the case.

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JOURNAL OF THE
INDIAN MEDICAL ASSOCIATION

CALCUTTA, JAUNARY 1, 1959

OUR CONFERENCE

The members of the Indian Medical Association met at Cuttack on 26-28 December 1958 at the 35th All India Medical Conference. This conference is held every year and it provides an opportunity for the members of I.M.A. from the different branches to discuss problems of mutual interest.

While the problems that confront the physicians vary with their location, they have a common bond, the medical care of their patients ; and medical conferences of this type establish valuable personal contacts and permit an exchange of ideas.

The difficulties which face the medical profession is that the attitude of the government has not proved much helpful in solving problems quite according to the opinion of the experienced members of the medical profession of the country. We regret that the national Government is still following the tradition of the former foreign rulers of the country.

In this connection we may quote Prof. Neuffer, the President of the German Medical Association. While his remarks had no doubt special reference for his own country, they apply equally well to the conditions availing here. The Professor said,[1] "the State and its agencies continue to invade medical spheres which could be more efficiently handled by the practising doctor. Obviously the State must be responsible for public health. But a sharp difference should be made between tasks which can only be fulfilled by the State and tasks, which the State may handle, and the domains which will never be properly handled if the State interferes. The State's tendency to invade more and more the spheres of social and individual life by orders and regulations can become a special danger for the medical profession. State law underlines the predominance of personal responsibility over the regulations of each collectivity. As health is an important part of their entire human personality, everybody *a priori* is self-responsible for his own health. Health policy of the State should not destroy or undermine this responsibility but should try to sponsor and develop it. Only then can the physician exercise his profession under proper conditions. One experience here is rather startling. Whilst the State irresistibly and steadily enters the most personal spheres of medical practice, health policy is treated in a stepmotherly fashion within the frame of general policy. Whenever the State should assist only by financial aid, it always considers other tasks as more important.

In the present position prevailing in this country, the medical profession has the difficult task of regulating the activities of the government in the sphere of health and medical care. But members of the medical profession cannot do it by individual effort. Collective action is necessary. The object of our Association is to direct such collective efforts against any ill-advised health policy of the Government.

Again to speak effectively for the profession, the Association should have as many members as possible. In a country where the total number of medical men is about 80,000, our Association must have the majority of them in its fold.

Dr. C. O. Karunakaran in his presidential address at the Cuttack Conference wanted to have the membership strength of the Association doubled by the end of this year. Dr. Karunakaran said : "With the attainment of independence came the call to raise the Association to the stature which national medical associations in other countries enjoy. Without attaining that stature we cannot discharge our duties to the profession and the people. In most of the Latin American countries and some of the European countries membership of the national medical association is obligatory. In countries like Denmark and Holland, although there is no compulsion, there is 100 per cent membership and in other advanced countries 90 to 98 per cent of doctors are members of their national association. We have to reach that level in the shortest possible time. That is not only the profession's necessity but also the country's necessity, because national health demands the united efforts of the entire medical profession, which cannot be marshalled in the absence of a strong national medical association. Therefore, it is the duty of every doctor to join the Association."

It was one of the foremost tasks confronting any professional association to persuade those who are outside its folds to become members. The Indian Medical Association should not be an exception to this general principle. This will make for increased numerical strength. But what is more important this will enhance the prestige and status of the Association. When all or nearly all the members of the medical profession band together in one organisation, no Government can ignore the considered opinion of the Association as it seems to be doing at present.

[1] *World Medical Journal*, **5** : 208, 1958.

CURRENT MEDICAL LITERATURE

Peptic Oesophagitis Simulating 'Post-Cholecystectomy Syndrome'

FRIEDMAN, A. I. (*Ann. Int. Med.*, **49** : 120, 1958) of Hackensack, New Jersy, writes :

Cholecystectomy for cholelithiasis was performed in four patients without relief of symptoms. In one patient, subsequent sphincterotomy for a presumptive diagnosis of biliary dyskinesia also failed to relieve the symptomatology. Gastroenterologic examination from one to eight years later revealed hiatus hernia (sliding) with peptic (reflux) oesophagitis. Medical therapy produced symptomatic relief in three patients, while one required surgical intervention for repair of the hernia.

The 'postcholecystectomy syndrome' is in some instances a result of inadequate preoperative investigation. Peptic oesophagitis may be responsible for the symptoms of a patient with calculous disease of the gall-bladder whenever heartburn and sour regurgitation appear prominent in the clinical picture. In these patients the decision to operate for gall-bladder disease should be an indication for barium meal study. The high incidence of silent, calculous gall-bladder makes such clinical investigation mandatory to avoid some of the failures of gall-bladder surgery.

Surgery of Portal Cirrhosis of the Liver

LINTON, R. R. (*Am. J. Med.*, **24** : 941, 1958) from the Department of Surgery, Massachusetts General Hospital and Harvard Medical School, Boston writes :

Transthoraco-oesophageal suture of bleeding oesophageal varices is recommended as an emergency life-saving procedure in those patients in whom exsanguinating haemorrhage develops from oesophageal varices and in whom it is necessary to institute cardio-oesophageal tamponage with a balloon type of tube. In this way it is possible to control the bleeding vessel and then institute medical measures to prepare the patient for shunt surgery, usually within a period of four to six weeks.

The most effective definitive treatment of bleeding oesophageal varices secondary to cirrhosis of the liver that has yet been developed in the construction of either a splenorenal or a direct portacaval anastomosis. The results to date in our clinic with this method of surgical therapy have been extremely encouraging. The life of the cirrhotic patient has been prolonged and the incidence of bleeding greatly reduced. In a few patients with uncontrollable ascites, despite their ability to maintain a normal serum albumin level, the construction of a splenorenal shunt has produced spectacular results in the relief of ascites.

Acroparaesthesia and the Carpal Tunnel

DICK, T. B. S. AND ZADIK, F. R. (*Brit. M. J.*, **2** : 288, 1958) from the Wigan and Leigh Group of Hospitals report that the term acroparaesthesia is used to describe nocturnal attacks of severe pain and tingling that affected the hands of middle-aged women.

The patients are not always female and not always middle-aged, though usually they are both. In the great majority the pain and paraesthesia are nocturnal—the patient waking from sleep with severe tingling in the thumb and fingers. The hand is usually described as swollen. Often the patient is completely free of symptoms during the day.

McArdle was the first to suggest that compression of the median nerve in the carpal tunnel by the transverse carpal ligament was the cause of this syndrome.

Walshe propounded the view that it was due to stretching of the lower component of the brachial plexus over the first rib. He stated that wasting and sensory losses do not occur. Ford called the condition the tired-arm syndrome, and suggested that it arose from an accumulation of metabolites in fatigued muscles.

It appears probable, therefore, that a difference of opinion still exists on the causation and treatment of this condition.

In 30 cases of acroparaesthesia the tranverse carpal ligament has been divided in 34 wrists. In 33 there was immediate relief of pain and paraesthesia. In the remaining case some other pathological condition was present.

Wasting of the thenar muscles, impairment of sensation, and pain referred to the arm, even as far as the shoulder, have been present in these cases—apparently successfully treated by division of the anterior carpal ligament.

Surgical Diathermy of Cancer of the Rectum

ROSENTHAL, I. L. AND TURREL, R. (*J.A.M.A.*, **167** : 1602, 1958) from the Department of Surgery, Mount Senai Hospital write :

The application of surgical diathermy (electrocoagulation) is described in four cases of rectal neoplasm. Biopsy specimens from the first patient were reported as showing a noninfiltrating adenocarcinoma without adenomatous tissue; after treatment by electrocoagulation the lesion was replaced by a scar, and there was no evidence of recurrence nine months later. In the second patient, biopsy led to the diagnosis of infiltrating adenocarcinoma; electrocoagulation was used because the poor general condition of the patient contraindicated more extensive surgery. Examination 11 months later yielded no evidence of malignancy. In the third, a sessile lesion in the rectum was diagnosed as infiltrating adenocarcinoma at biopsy; 14 months after electrocoagulation of the lesion sigmoidoscopy revealed normal mucosa at the site of the lesion. In the fourth patient, rectal pain of four or five years' duration led to sigmoidoscopy and the finding of an infiltrating carcinoma. This lesion was removed with a cold biopsy forceps, and the base was electrocoagulated; when last seen, the patient was free from gross evidence of rectal malignancy. The authors present evidence, however, that such favourable results from electrocoagulation in rectal cancer are exceptional. For the invasive type of lesion the authors continue to recommend the currently accepted surgical procedures, and they reserve electrtocoagulation for those patients who are considered extremely poor surgical risks.

New Cytostatic Agents in Malignant Disease

PEREVODTCHIKOVA, N. J. (*German M. Monthly*, **3** : 104, 1958) from the Institute of Experimental Cancer Pathology and Treatment of the Academy of Medical Sciences, Moscow, U.S.S.R. give in the following lines the summary of their clinical experiences with new cytostatic agents in malignant disease :

Sarkolysin and Dopan are drugs of the chloroethylamine group capable of undergoing chemical reaction with functional groups in cellular tissue under physiological conditions. It is this quality which permits their entry into tumour cells. Dopan was shown to be effective over the same range of diseases as other chloroethylamine compounds. The spectrum of activity of Sarkolysin was found to differ from that of other compounds of the chloroethylamine group. This shows that potential applications of the chloroethylamines have not yet been fully exploited and that further investigations of new chloroethylamine derivatives may yield interesting results.

Results with Sarkolysin [DL-p (bis-(B-chloro-ethy)-aminol)-phenylalanine hydrochloride] and Dopan [4-methyl-5 (bis(B-chloroethyl)-amino)-uracil] in the treatment of malignant diseases are reported. Sarkolysin was used in 143 patients with inoperable metastasising neoplasms. Favourable results were obtained only in seminoma (especially its metastases), reticulum-cell sarcoma, Ewing's sarcoma, malignant endothelioma, primary neoplasm of the liver and bile passages, thymoma, and multiple myeloma. Best results were obtained against seminoma : 19 of 23 patients responded favourably. The drug was administered once a week, 40-50 mg., to a total dose of 200-250 mg. Leukopenia and thrombocytopenia occur occasionally.

The cystostatic spectrum of Dopan corresponds to that of chloroethyomine. It is effective almost exclusively against chronic meloid leukaemia and Hodgkin's disease. It is given in oral doses of 10 mg., 4-5 days apart, to a total of no more than 50-80 mg. Leukopenia and thrombocytopenia occurred as side-effects; but gastro-intestinal side-effects were rare and so mild that Dopan is the drug of choice in the treatment of Hodgkin's disease.

Nitrofurantoin on Morbidity after Transurethral Prostatic Resection

ORR, L. M., DANIEL, W. R., CAMPBELL, J. L. AND TOMELY, M. W. (*J.A.M.A.*, **167** : 1455, 1958) from the Department of Urology, Orange Memorial Hospital, Orlando, Florida State, U.S.A., from an analysis of the study on the effectiveness of routine prophylactic chemotherapy in the series of 183 patients after transurethral prostatic resections observe :

A group of 53 patients received 100 mg. of nitrofurantoin (Furadantin) four times a day for two weeks; a group of 43 received half that dosage; and the remaining 87 were treated without this drug. Nitrofurantoin was found by tests *in vitro* to have the widest range of antibacterial activity of the 11 agents tested in this study. Nevertheless, fever occurred postoperatively with nearly equal frequency in all groups, and there was no significant difference in the degree of pyuria among the three groups six to eight weeks after operation. Extensive study of the bacterial species involved showed Pseudomonas species to be the organism most frequently encountered. Neither this organism nor *Staphylococcus aureus* were suppressed by the nitrofurantoin, but all the other organisms showed a marked decrease in incidence.

Liquorice Preparations in Eye Diseases

LI, H. C. AND CHEN, C. K. (*Chinese M. J.*, **76** : 548, 1958) from Tsingtao Medical College, Tsingtao, in view of the deoxicortone-like effect of liquorice extract which appears to potentiate the action of cortisone and the fact that sometimes it is used as a substitute for cortisone in patients with Addison's disease gave the drug a clinical trial in certain selected eye diseases the results of which are summarised as follows :

The effect of oral administration of fluid extract of liquorice on iridocyclitis and interstitial keratitis was not convincing.

Episcleritis, scleritis, phlyctenular keratitis and vernal conjunctivitis responded favourably to local application of liquorice extract or sodium salt of glycyrrhizinc acid.

The results of the combined use of liquorice preparations with small doses of cortisone were satisfactory.

Local use of liquorice preparations gave better results than oral administration. Sodium salt of glycyrrhizinic acid was satisfactory.

Mitral Valvotomy and Pregnancy

WADE, G., NICHOLSON, W. F. AND MORGAN JONES, A. (*Lancet*, **1** : 539, 1958) from the Department of Cardiology of the University of Manchester and of Royal Infirmary, Manchester in reporting on the results in 12 patients with mitral stenosis submitted to the mitral valvotomy while pregnant together with those in 77 published cases observe :

In these 89 cases the operative mortality was 2·2 per cent and the abortion-rate 5·6 per cent.

It is concluded that : (1) pregnancy does not appear to increase the operative risk; (2) by contrast with medical management the operation does not increase the foetal mortality; and (3) in suitable cases valvotomy seems preferable to termination.

Seventeen pregnancies in 16 patients who had previously undergone mitral valvotomy are reported : twelve living children were obtained by normal full-term delivery; one pregnancy was terminated at fourteen weeks because of heart-failure; 1 patient was delivered by caesarean section at thirty-eight weeks because of toxaemia; there were two foetal deaths unrelated to the mothers' heart condition; and 1 patient is still pregnant.

Symptoms due to severe pulmonary congestion were encountered in 3 of 10 patients placed in function group I after the operation and 5 of 6 patients placed in group II.

It is concluded that (1) although pregnancy following successful valvotomy is usually safe, difficulties may be encountered; (2) a technically unsatisfactory operation, even if followed by reasonable functional improvement, is unlikely to permit of a trouble-free pregnancy; and (3) assessment of fitness for pregnancy cannot be satisfactorily undertaken sooner than six months after the operation. Delay in conception after this may be disadvantageous.

CURRENT TOPIC

MEDICAL COUNCIL OF INDIA, 15TH SESSION, 1958

Extracts from the Presidential Address of Dr. C. S. Patel

On the recommendations of the Council, the Government of India have included the following post-graduate qualifications in the Schedules of the Indian Medical Council Act, 1933.

(1) M.Sc. (Medical Pharmacology)—Rajputana University—now Rajasthan University. (2nd Schedule).
(2) D.L.O., D.V.D., M.S. (General Surgery), M.S., (Orthopaedics)—Andhra University. (1st Schedule).

During April-May, 1958, the inspection of post-graduate qualifications given against each of the following centres were carried out :

(1) Agra University : D.C.H., D.O.M.S.
(2) Baroda University : M.Sc. (Physiology), M.D. (Pathology), M.D. (Medicine), M.S. (Surgery), D.L.O.
(3) Vikram University : M.S. (Anatomy), M.D. (Physiology), M.D. (Pharmacology), M.D. (Medicine), M.S. (Surgery), M.S. (Midwifery & Gynaecology), D.C.H., T.D.D., D.M.R.E., M.S. (Ophthalmology), M.D. (Pathology).
(4) Andhra University : M.S. (E.N.T.), M.D. (Pharmacology).

The Inspectors' reports as received have been forwarded to the Universities concerned for their observations, on receipt of which the matter will be placed before you in due course.

Arrangements have been made to carry out inspections for the post-graduate qualifications given against each, at the following centres :

(1) Bihar University : M.S. (Anatomy), M.D. (Physiology), M.D. (Pharmacology), M.D. (Pathology), M.D. (Medicine), M.S. (Surgery), M.D. (Midwifery & Gynaecology), M.S. (Midwifery & Gynaecology), M.S. (E.N.T), M.S. (Ophthalmology), M.S. (Anaesthesia).
(2) Andhra University : M.S. (Ophthalmology), D.A., D.O.
(3) Bombay University : M.Sc. (Medical) (Physiology), M.S. (Orthopaedics).
(4) Gujarat University : M.D. (Paediatrics), M.Sc. (Medical) (Pharmacology), M.D. (Pharmacology), M.D. (Pathology).
(5) Punjab University : M.D. (Pharmacology), M.D. (Obstetrics & Gynaecology).
(6) Rajasthan University : M.S. (Ophthalmology).
(7) Poona University : M.D. (Pharmacology).

As regards re-inspection of the qualifidations of Poona University, viz., M.S. (Surgery), M.D. (Pathology), M.D. (Medicine), the Council had appointed visitors for the purpose, but as the recognition of the qualifications is involved, in pursuance of the direction of your Executive Committee, inspection by Inspectors has been arranged for.

The following post-graduate qualifications already recommended to the Government of India are receiving their consideration and in their reply we have been informed that they would be included in appropriate schedules when the new Act would come into force.

(1) Andhra University : D.O. (Diploma in Ophthalmology), D.G.O. (Diploma in Gynaecology & Obstetrics), M.D. (Pathology & Bacteriology), M.D. (Medicine), M.D. (Obstetrics & Gynaecology)—Andhra Medical College, Visakhapatnam.
(2) Aligarh University : D.O. (Diploma in Ophthalmology).
(3) Punjab University : M.D. (Medicine), M.D. (Pathology), M.D. (Physiology), M.S. (Ophth.), M.S. (Surgery), M.S. (Anatomy), D.O.M.S.—Medical College, Amritsar.
(4) College of Physicians & Surgeons of Bombay : F.C.P.S. (Midwifery & Gynaecology), F.C.P.S. (Ophthalmology), D.P.B. (Diploma in Pathology & Bacteriology), D.G.O. (Diploma in Gyn: & Obst.), D.C.H. (Diploma in Child Health).
(5) Agra University : M.D. (Medicine), M.D. (Pathology), M.D. (Pharmacology), M.D. (Physiology), M.S. (Surgery), M.S. (Ophthalmology)—S. N. Medical College, Agra, M.S. (Surgery)—G. R. Medical College, Gwalior, M.S. (Obst. & Gyn.)—G. R. Medical College, Gwalior, and M. G. M. Medical College, Indore. M.D. (Physiology)—M. G. M. Medical College, Indore.
(6) Bombay University : D.O., M.D. (Medicine), M.D. (Midwifery), M.S. (Otolaryngology), M.S. (Surgery).
(7) Rajputana University : M.Sc. (Medical) Anatomy.
(8) Poona University : M.D. (Midwifery).

I had informed you at the last session that in view of the College of Physicians and Surgeons of Bombay having started awarding honorary F.C.P.S. diplomas to a number of persons recently, the Executive Committee had appointed a Sub-Committee to look into the matter. While accepting the recommendation of the Sub-Committee, which is being placed before you, the Executive Committee has opined that honorary degrees should not be given as a rule, exceptionally however, they may be awarded to a non-medical person of great distinction. Only the names of those who appear at and pass the examination, are to be put on the Medical Register and their qualifications need be included in Schedules of Indian Medical Council Act, 1933 and of the new Act.

Under the direction of your Executive Committee the General Medical Council has again been approached with regard to advancing the date of recognition in respect of the students trained at the M. G. M. Medical College, Indore, affiliated to the Agra University, i.e., with effect from March, 1953. At present the recognition is from 1st March, 1955.

As regards the recognition of M.B.B.S. degree granted by the Travancore University (now Kerala University), the observations of the University on our recent inspection carried out in February, 1958, are awaited, on receipt of which the required information would be forwarded to the General Medical Council.

The General Medical Council has recognised the M.C.P.S. diploma granted by the College of Physicians & Surgeons, Bombay, in respect of the persons who

have undergone a course of training at the Grant Medical College, Bombay, Seth G. S. Medical College, Bombay and the Topiwala Medical College, Bombay. As directed by the Executive Committee an inquiry has been made to the College of Physicians and Surgeons of Bombay as to whether students from colleges other than those named above appear for the M.C.P.S. qualification, so that their case might also be taken up with the General Medical Council of U.K. Their reply is being examined.

As regards the recognition of the M.B.B.S. degree of the Osmania University by the General Medical Council, your Executive Committee has decided that an inspection of the facilities for teaching and the standard of examination be carried out, and the inspection has been arranged for. This has been done to ensure that the defects pointed out by the Inspectors previously have been remedied, so that there may not be any difficulty about the recognition of the qualification by the General Medical Council of U.K.

In pursuance of the decision of the Executive Committee the General Medical Council of U.K. has again been addressed requesting them for a fair scheme of mutual recognition of medical qualifications between the two countries, so that the entry in respect of the U.K. in the Second Schedule of the Indian Medical Council Act, 1956 be formulated accordingly.

The Delhi University has informed us that they have appointed a Commission to inspect the facilities for teaching in the Lady Hardinge Medical College and thereafter they would send us their observations regarding the rectification of the defects pointed out by our Inspectors in their reports. In view of this position the Council could not approach the General Medical Council of U.K. for the recognition of the M.B.B.S. degree granted by the Delhi University with retrospective effect.

Under the direction of your Executive Committee an inquiry has been made to the New Zealand Medical Council, if they are prepared to establish unconditionally reciprocity on direct basis with us. In reply they have stated that they could let us know when they are in a position to give final consideration to the matter.

As approved by your Executive Committee the reciprocal recognition of medical qualifications between Victoria and India has been finalised and as such the qualifications granted in Victoria and recognised by the Medical Board of Victoria have been granted recognition in India, while the Indian qualifications approved by the Medical Council of India would be recognised similarly in Victoria.

As regards reciprocity with South Africa, the Council has been anxious that a scheme of reciprocity should be established between the two countries who share so many matters of mutual interest. Unfortunately, the South African Medical Council does not want to establish mutual reciprocal recognition of medical qualifications between the two countries on direct basis. In view of this position, I am afraid, it will not be possible to recognise South African Medical qualifications in India. However, this Council will always be prepared to consider any proposal from South Africa—nay, from any country, for a fair scheme of reciprocity in the matter of medical education and medical practice.

We have been trying to explore all possible avennes to establish reciprocity of recognition of medical qualifications between U.S.A. and India. Unfortunately, there is no Central Body in the States dealing with registration of medical practitioners, with whom we could negotiate. According to the information received by us the American Universities do not observe any uniform practice in accepting or rejecting candidates for advance work. Foreigners are not permitted to set up practice in the States on the basis of their qualifications. Under our special resolutions, we have, however, been allowing registration in India to Indians and Americans holding American qualifications. Dr. John P. Habbard, Executive Secretary, National Board of Medical Examiners, Philadelphia, was here recently and he was apprised of the standard of our teaching, examinations and qualifications. I understand that the Educational Council for Foreign Medical Graduates are introducing a sort of screening examination of medical graduates from India for facilitating admission to internships and Hospital Residencies in U.S.A. Dr. Hubbard was told that such a procedure could not be accepted, especially when the Medical Council of India is maintaining a high standard of medical education and examination in this country and your Executive Committee has approved of the same. However, as directed by the Executive Committee each State in U.S.A. has been asked as to whether they agree to our students obtaining training there and whether the students after they are trained can practise there provided they become American citizens. On receipt of their replies the matter will again be considered by the Executive Committee. Meanwhile the recommendation of the Executive Committee that the American medical qualifications may continue to be recognised under the special resolutions of the Council on individual merits till 1960 is for your consideration as also the Executive Committee's opinion that the certificates awarded by the Speciality Boards in U.S.A. and Canada cannot be considered equivalent to M.D. or M.S. degrees of Indian Universities.

As decided by the Council, certain post-graduate qualifications were recommended to the Government of India from time to time for recognition in respect of particular medical institutions. In regard to the recognition of under-graduate qualifications also, the same principle applies relating to specifications of names of medical colleges under the University concerned; while under the same University there may be other medical colleges which may not have been approved. The Government of India, however, did not agree to such a distinction being made and you have referred back for reconsideration to the Executive Committee their recommendations in this behalf. After careful consideration, the Executive Committee have adhered to their previous recommendations and in the meantime the General Medical Council of U.K. has been requested to intimate the practice in U.K. regarding the distinction indicated in respect of different colleges under the same University.

According to the present practice, while recognising a post-graduate medical qualification the speciality is indicated against each qualification. The Government of India have forwarded to us the plea of the Bombay

University, that since the M.D. and M.S. degrees of the University were already included in the Schedule, there was no need to include these degrees branchwise. Your Executive Committee did not agree with the view of the Bombay Government that the name of the speciality should not be indicated with regard to the recognition of a post-graduate qualification in a particular speciality. The Government of India have, therefore, been informed of this opinion of the Executive Committee and it is further pointed out that since neither the Government nor any other University have objected to the inclusion of such degrees branchwise, the Executive Committee did not see any reason why the Bombay University should object to this arrangement.

As recommended by the Council the diploma of Medicine de l'École de Pondicherry granted by the French Medical School, Pondicherry, has been included in the 2nd Schedule of the Indian Medical Council Act, 1933. Your Executive Committee have postponed the consideration of the question of recognition of M.D. (Paris), held by the people in Pondicherry, till it is *de jure* recognised as Indian territory for purposes of Indian citizenship.

The syllabus of teaching of Preventive and Social Medicine for under-graduate students as formulated was forwarded to the Universities for their views. The views so received were, in pursuance of the direction of the Executive Committee, forwarded to Sub-Committee, to examine the draft syllabus in light of the views received from the Universities, and to submit the proposed syllabus for further consideration. The recommendations of the Sub-Committee as accepted by the Executive Committee are being placed before you as also the recommendation that the training in the subject of Occupational Health be included in the syllabus of Social and Preventive Medicine.

On reference from the Director General of Health Services and further information received regarding the inclusion of family planning in the medical curriculum, the matter was referred to the same Sub-Committee, whose report was considered by the Executive Committee along with the resolution on the subject which was referred by the Council to the Executive Committee, at its last meeting. The report of the Sub-Committee together with the recommendation of the Executive Committee that instruction in Family Planning should be included in the medical curriculum for under-graduate studies and that this should comprise of about 6 lecture-demonstrations at the Family Planning Centre attached to a medical college or to a recognised Health Centre, provided that this training be undertaken during the post-examination period, are being placed before you.

With the introduction of one year pre-university course and abolition of intermediate course under some Universities and creation of a three years' degree course thereunder as had been advocated by the Inter-University Board, a problem had arisen as to the provision of pre-medical education and qualifying examination for admission into medical colleges. The Executive Committee had referred this matter to the Sub-Committee mentioned above, and as subsequently directed by the Executive Committee, the report of the Sub-Committee was forwarded to the Universities for their opinion. All the information so collected has now been referred to the Sub-Committee by the Executive Committee for examination and report.

According to our recommendations on Professional Education the age of admission to a medical college has been fixed at 17 years at the time of admission or that the candidate should complete this age within 4 months of his or her admission to the College. There have been references from time to time from individuals concerned, but the Executive Committee did not agree to relax this provision in any case. It has been observed now that there is no uniformity in this matter in the different Colleges and as the date of admission differs from University to University, some candidates are put to a disadvantage. The Executive Committee have considered the matter and have recommended to you that the age of admission to a medical college should be 17 years to be completed on the 26th January, following the year of admission.

Under the Bombay Medical Practitioners Act, 1938, medical practitioners not registered are not allowed to practice in the State of Bombay for personal gain. The Bombay Government, have referred to us the suggestion to exempt foreign medical experts visiting the country for short periods from the operation of this provision when found suitable. Under our special resolutions foreigners holding non-schedule medical qualification are recommended on individual merits for registration with a State Medical Council in the interest of medical education and medical relief in the country, provided the person concerned does not indulge in private practice for personal gain. No general concession in this behalf has been prescribed by the Council. The suggestion made by the Bombay Government does not fall under the scope of our special resolutions and the foreigners referred to would be practising for personal gain. Your Executive Committee have expressed the opinion that foreign experts holding non-scheduled medical qualifications cannot be allowed registration for personal gain.

As the purpose assigned to the Council under the Act was to establish a uniform minimum standard of higher qualifications in medicine, the Medical Council of India has been deeply interested in the medical curriculum pursued and the standard of examination maintained at various medical colleges. Therefore, in view of the latest developments in and suggestions for the improvements of medical curriculum, a revision of the recommendations on professional education was undertaken by the Council, and in 1950 the final report of the Sub-Committee, which was appointed for the purpose, was forwarded to the various Universities for their comments, with the request that they should particularly indicate :

(1) Whether there should be four years of training in the medical curriculum and one year's internship or four and a half years' training and six months of internship;

(2) Whether the training in Preventive Medicine should be wholly during the student's medical curriculum or be partly in that period and part-

ly during the period of internship; it being understood that the training in Preventive Medicine should include experience of actual rural conditions both as regards medical relief and sanitary conditions in the rural areas and supplemented, if deemed necessary, by a stay of the student in rural areas under the guidance of suitable officers;

(3) Whether a system of holding periodical examinations every fortnight or every month by the College should be adopted and the results of such examinations be forwarded to the University and taken into account at the time of University examinations in assessing the marks of students at these examinations.

In 1952, the Council adopted the revised curriculum for the under-graduate course. In 1953, the Council formulated a Committee on Under-graduate Medical Education to advise the Council on matters relating to under-graduate medical courses, the standard of examinations, teaching and training requirements, inspection of facilities and examinations etc. The standard requirements for a medical college at 100 admissions annually were drawn up by this Committee and the requirements were finally adopted by the Council in 1954, and circulated to all the Universities and medical colleges. The Council revised its previous recommendations on the qualifications required for the appointments of persons to posts of teachers and visiting physicians, surgeons etc. in medical colleges and attached hospitals for under-graduate and post-graduate teaching. The revised recommendations were adopted in 1953 and circulated to Universities and medical colleges for implementation.

As regards post-graduate medical education, in 1950, a Sub-Committee was formed to consider the reports received from the different Universities regarding post-graduate medical instruction. The Sub-Committee drew up draft recommendations on the subject, which were forwarded to the Universities for their comments. In November, 1952, the Council adopted recommendations on post-graduate medical education regarding nomenclature of the degrees, courses and periods of studies, examinations recognised, training institutions and teachers, and they were forwarded to the Universities. In 1953, a Post-graduate Medical Education Committee was formed to advise the Council on matters relating to post-graduate medical courses, standard of examinations, teaching and training requirements, inspection of facilities and examination, etc., with powers of co-opting additional members, including specialists who may not belong to the Council and also for the formation of Sub-Committees for consideration of special subjects as and when necessary. Seventeen Sub-Committees for various specialities were formed to draw up the syllabus etc., in each subject. The Committee and the Sub-Committees have done very useful work and your Executive Committee have recommended their renewal for another term of five years with the same membership.

In an effort to provide better medical services for the great and growing population of our country, the Government and the Council have been engaged in various programmes to secure a large increase in the number of qualified medical practitioners. This has been done by establishing new medical colleges or by up-grading to University standards institutions which previously trained licentiates. Some of the new up-graded medical colleges have been affiliated to Universities, which have for many years granted medical degrees. Others have been affiliated to or incorporated in new Universities or in Universities which previously had no medical faculties.

The high standard of medical education and training has been maintained by our Council by instituting inspections of teaching facilities at various Colleges and the examinations of the Universities, periodically as well as when a College or a qualification is to be recognised for the first time.

Since I took over in 1951 as President, the number of Colleges has increased from 30 to 51 and by the end of the 3rd five year plan, the number is expected to rise up to 67. Admissions to the medical colleges have increased from 2,500 in 1951 to 4,600, and by the end of the 3rd five year plan, i.e., 1965-66, these are expected to go up to 6,000. The number of medical practitioners in 1951 was 59,000. It has now increased to 80,000 and it is expected to reach the figure of 1,02,500 by 1965-66. The number of medical institutions, hospitals and dispensaries has increased from 8,600 to 12,000, and is expected to reach the figure of 17,000 by 1965-66. The number of hospital beds in 1951 was 1,13,000. It has now increased to 1,55,000, and by the end of the 3rd five year plan, if the present tempo of progress is maintained a target of 3,60,000 will be achieved in 1965-66.

The primary task of the Council has always been that of creating or sustaining a sufficiently high standard of medical education. It has no doubt been helped by many developments in the country as a whole and notably by the increasing vigour with which the Universities, both old and new, have applied themselves to the task of educating medical students. Nevertheless the Council may fairly take some credit for the great advances that have taken place since 1950-51.

The Council, however, could not and cannot allow an increase in the number and scope of the institutions at the expense of quality. The ultimate aim of the Council has all along been that the basic medical qualification in the country should not be lower than the M.B.B.S. standard. Further, human life should not be left in the charge of inadequately trained medical men. Your Executive Committee has, therefore, resolved that in event of the existence of more than one Medical Colleges in each State and in some cases even more than one Universities offering graduate and post-graduate training in different branches of medical science, the State Governments should consider the advisability of continuing such purely examining and diploma granting institutions such as the College of Physicians & Surgeons of Bombay and the State Medical Faculty granting M.M.F. etc., particularly when these bodies have ceased to grant licentiate qualifications for which they were originally established. Keeping in view the present set-up of medical education in the Universities, under the direction of the Executive Committee, the State Governments have been requested to communicate their views in this

matter and their replies, when received, will be given due consideration.

It is of course realised that the present-day pattern of the State policy lays prime importance on social welfare. Specialisation of medicine or in other words nationalisation of medical aid is but a step in the right direction. However, the gigantic organisation required to meet the problem adequately is not yet in sight, principally due to the paucity of resources as well as trained medical personnel. Therefore, I would like to suggest to the Government to proceed slowly while implementing the basic principles in practice so that the change should be very gradual. To that end, during this and the subsequent plan periods, I would point out the desirability of introducing this change initially in the rural areas. Urban medical profession, if need be, can look after the persons employed in organised institutions like Banking, Shipping, Insurance and other industrial organisations. Let the pace be towards socialisation, but let it be gradual so as to permit the large urban and rural medical profession to make appropriate psychological and practical adjustments. Moreover, it will be impracticable for the State to embark on nationalisation on a wide scale at this stage.

Apart from the momentous changes in India's political, social and economic structure giving rise to various problems in medical education and health care of the people, the Medical Council of India have been watching closely the changes both progressive and revolutionary that have been taking place in the field of medicine in different countries. In order to keep a closer watch over our own progress, the Council has decided to have periodical rounds of inspections after every five years for under-graduate courses and inspections have been carried out and are being carried out accordingly.

During the past 8 years, 63 inspections of the facilities for teaching and the standard of examinations relating to under-graduate medical qualifications have been carried out. These inspections included periodical inspections as also inspections with a view to grant recognition to further under-graduate qualifications, as a result of which 13 more qualifications have been added to the Schedules of recognised qualifications. In order to help and guide the medical institutions in their development on the right lines 24 inspections by Visitors of the Council were carried out during this period. In my opinion inspections by the Council's Visitors should be more frequent so that Members of the Council can visit institutions and Universities and give them the benefit of their advice and explain to them the requirements of the Council in various matters.

Certain post-graduate medical qualifications of some universities have already appeared on our schedule and subsequently, some such qualifications were added on receipt of necessary information from the licensing body concerned. It was, however, considered necessary that inspections on behalf of the Council for post-graduate medical qualifications as well, should be pre-requisite for recognition especially when the Council in 1953 had adopted their recommendations on post-graduate medical education. Therefore, since then inspections have been carried out and are being carried out to assess the standard of the examinations and facilities for the teaching of post-graduate medical qualifications granted by the various universities and licensing bodies, on receipt of their request through the Central Government. So far 118 such inspections of post-graduate examinations and facilities for teaching have been carried out by the Inspectors of the Council and 21 post-graduate medical qualifications have been included in the Schedule, while the recommendations of the Council relating to 34 post-graduate qualifications are receiving the consideration of the Government of India, and observations of the Universities concerned are being awaited in 58 cases, while in 5 cases re-inspection has been decided upon. As regards Public Health qualifications, according to the ruling of the Government of India such qualifications cannot be included in our Schedule until the Act has been amended and as such the matter was not pursued.

In our recommendations on professional education, we have laid down general principles and the requirements with regard to teaching in Midwifery, in respect of instructions as well as attendance to labour cases by students in the Maternity Hospitals and in the patients' homes. Under the direction of your Executive Committee detailed information with regard to the conditions prevailing at the various medical colleges regarding teaching in Midwifery was obtained, including the information about the increase in number of confinement cases during the last 5 years and also regarding increase in time allotted to clinical Midwifery. The information so collected was tabulated and placed before the Council at its meeting held on the 27th September, 1957. Such survey will be done after every period of 5 years.

The Council has realised that for the successful growth of teaching centres, the teaching personnel should be of adequate standard and experience. In order to ensure this important aspect of medical education, the Council has laid down the minimum academic qualifications and teaching experience required for the different posts in medical colleges and attached hospitals. In view of the difficulties experienced by local authorities regarding short-term appointments, the Council decided in 1955, that in case of appointments of teachers for a maximum period of six months, the qualifications recommended by the Council might not be strictly adhered to. I am glad to say that the appointing authorities have invariably kept in view the qualifications recommended by the Council, while making appointments of teachers. In case of any doubt or difficulty references have been made to us and we have given guidance during this period in 83 cases concerning individual merits.

For efficient teaching it is important that personal attention should be given to every student. Therefore, the Council has recommended a teacher-student ratio of 1 to 10. At any rate the number of students entrusted to one teacher ought not to exceed 12. In order that a teacher should devote his full attention to teaching work, the Council has recommended that there must be at least one whole-time unit in each clinical department

under the Professor in the subject. This unit is also expected to function as a connecting link between the clinical departments and the distribution of clinical work among the students during the term of their hospital practice and to help in promoting research.

In order to maintain uniformity of standards and also to improve medical teaching in all its branches throughout the country, in 1952 your Executive Committee forwarded to the Universities for their views, the proposal that exchange of teachers be effected, from time to time between inter-State and inter-University Colleges, teaching under-graduate and post-graduate students in Medicine. In 1953, the Executive Committee considered the replies received from various Universities and had expressed the opinion that as an initial measure exchange of teachers might be arranged between colleges within one State or Colleges under different Universities. The detailed arrangements for such a scheme have been left to the Universities and the colleges concerned. This opinion of the Executive Committee has been forwarded to the various Universities and Medical Colleges.

In the interest of sound and progressive medical education in the country, it is essential that proper amenities and adequate pay and service conditions should be provided for the teaching personnel. To that end we represented the matter to the authorities of various institutions and they agreed in principle to ameliorate the service conditions of the teaching staff. In March, 1957, the Council adopted a resolution on the subject urging upon the Government of India and State Authorities the necessity of ensuring that the teachers in Medical Colleges are properly paid and that they are provided with adequate amenities and are retained in teaching appointments up to the age of 60 years. I trust that the recommendations of the Council would bear fruit and the financial difficulties would be overcome ultimately.

I agree with Allen Gregg that research done on the diseases of Indians by Indians in India offers far greater returns than research on the diseases of Indians done in India by foreigners or research on the diseases of other nationalities done by Indians abroad. Unlike scientific and industrial research, medical research does not attract attention of private sector because of the lack of profit motives and implications. Therefore, sufficient money has to be provided on government level for research facilities. I am aware that medical research is being done in certain spheres by certain agencies, but that is not enough. Research must play a very important role in both teaching and non-teaching institutions. The medical colleges provide considerable material and opportunities for research work with proper encouragement and facilities. In view of this the Council at its meeting held in September, 1957 drew the attention of the Universities to its recommendations on post-graduate medical education and that they should set up a department of post-graduate medical education on research with the Universities. The Universities were requested to consider the desirability of providing facilities for training and research for the students as also of arranging for the appointments of teachers of the proper type, for different subjects of post-graduate study. The necessary information in this connection is being received from the various Universities and then the matter will be placed before you.

I feel that a few basic facts must be borne in mind with regard to research work of any kind. There are two separate categories, namely individual research work and organised research. Organised research involves a prior delineation of various problems belonging to diverse branches of medical science and an orderly execution through specially selected teams working under one co-ordinating agency. Individual research is much more limited in scope since the definition of a problem as well as its execution are the enterprise of a single individual, but it can be equally creative and no less original than organised research. It would give further impetus to research if our pharmaceutical manufacturers give facilities to our graduates for study and research, as is being done abroad by providing special laboratories, hospitals, beds and scholarships for research workers. The selection Board or authorities have to be careful in selecting a candidate for a specific type of research with due regard to his or her aptitude for a particular subject. A large number of persons should be employed with plenty of encouragement for various research problems at different teaching and non-teaching institutions. The final selection should be made only after assessing the type and the quality of the work each has put in. They should be paid adequately and should receive adequate amenities after retirement. Such young men should be harnessed in large numbers for the investigation of chosen problems in basic and clinical medical sciences.

Post-graduate medical education is an integral part of research and therefore, should be compulsorily or necessarily allied to research work. It is obvious that only a research minded teaching staff can inculcate and infuse the spirit of active research in students of post-graduate classes. Scrupulous care has to be exercised in the selection of such a staff, suitable remuneration to be assured, commensurate facilities in the form of well equipped departments and freedom from unnecessary and unrelated duties have also to be provided. Then only can the appropriate background for research be created. To this end, a permanent and ever expanding cadre of research personnel, ought to be established for original research and post-graduate medical education. A long-term policy is thus required in the interest of medical education and research instead of what is now being done, when workers are employed only for short periods for research projects.

For medical education as well as research, various departments of the teaching institutions and hospitals require an adequate number of well trained technicians. The dearth of technicians is felt as much as the dearth of the medical and the nursing personnel. I strongly feel that this problem can be met by creation of a cadre for this auxiliary personnel for purposes of training and employment. Young men of promise can be sent abroad for advanced training so that, in due course of time, manufacture and maintenance of appliances and apparatuses can be indigenously carried out.

I trust the the reconstituted Council after the implementation of the new Act, will endeavour to implement research set-up through the proper channels in each department of the Medical Colleges in India in the next five years of its regime, so as to improve the pattern of under-graduate and post-graduate medical education and thus raise the standards.

It is my firm belief that we cannot go ahead in solving our educational problems and in the provision of relief work without securing a sound basis for research in each department of the Colleges.

At present this Council has no disciplinary ethical powers in relation to medical practitioners. Control of medical practice and maintenance of discipline among registered practitioners according to the code of medical ethics are the responsibility of the State Medical Councils in various States. In order to have a uniformity in the provisions of the code of medical ethics and in the provision of disciplinary measures, the Medical Council of India has drawn up a code of medical ethics which has been forwarded to the State Medical Councils for their guidance. This code will be incorporated under the new Act. The Council has also constituted a Penal and Ethical Committee to which references received from the State Medical Councils with regard to ethical and penal matters are referred to, for examination and opinion and thereafter, they are considered by the Executive Committee and the Council. So far 7 such cases referred to us have been disposed of by your Penal and Ethical Committee and 4 are under consideration. Your Executive Committee has recommended to you that the term of the Penal and Ethical Committee be renewed for another 5 years with the same membership. Under the new Act the Council would be called upon to maintain an All India Medical Register and also to deal with attendant penal and ethical matters.

To promote cultural relations between foreign countries and India our Government has been granting scholarships to students of foreign countries, where educational facilities are not available to enable them to come to our country for such higher education and research as we could provide. Many such students have been referred to us by the Government, in order that facilities might be provided to them for higher medical education and research. We have co-operated fully with the Government in the fulfilment of this laudable object. It has, however, not been possible for us to commend the benefits of the Cultural Scholarships' Scheme to visiting students whose pre-requisite educational standard, pre-medical and medical, has not been found sufficient.

The Government of India had referred to us for opinion the resolutions of the 3rd Health Ministers' Conference, held in 1950, relating to the standards of training in the indigenous system of medicine and homoeopathy and about having common instructions in non-clinical subjects for students of modern and indigenous systems. The incorporation of research on modern scientific lines with indigeneous systems is certainly desirable. It is also necessary that proper arrangements for training teachers and research workers be made by the State and the fruit of research which can stand modern scientific tests be incorporated in modern medicine. As decided by the Council the Government has been informed that there should be only one system of medicine in India, viz., the modern system of medicine with a uniform standard as prescribed by the Medical Council of India. Further, there being such fundamental differences in theory and practice between modern medicine, the indigenous systems of medicine, and homoeopathy, it would be impossible and unsatisfactory from the point of view of the interests of the students and of the advancement of these systems to arrange for a simultaneous teaching of modern medicine and of any of these other systems during undergraduate course in modern medicine. Therefore, the Council has expressed the opinion that the study of indigeneous systems and homoeopathy should be promoted only as post-graduate course of training after the intending practitioners have obtained the basic qualification in modern medicine as is the case in respect of homoeopathy in U.K., the continent of Europe and America. The Council has therefore, considered it essential that every person trained hereafter to take up the profession of medicine, should have a basic qualification in modern medicine, in order that the provision of adequate curative and preventive medical care, to the civilian population and to the Armed Forces, may be facilitated and that India may increasingly participate in international health work, in her own interests and those of other countries.

In pursuance of the Medical Act of 1950, the General Medical Council requires 12 months' iniernship before full registration in U.K. A provision was made, however, for temporary registration which could be availed of by students for higher medical studies. So as to ensure that medical practitioners should have had experience in hospitals or other approved institutions before they are granted degrees and finally registered. We have also introduced in our recommendations on prefessional education, post-examination training corresponding to the internship as envisaged by the General Medical Council of U.K. Your Executive Committee have under consideration the question of recognition for post-examination training not only in those hospitals which are attached to teaching institutions, but suitable civil and military hospitals as well.

In spite of our anxiety and efforts to improve our relations with the General Medical Council of U.K., many Indian qualifications recognised by our Council and included in the Schedule, remained unrecognised by that Council and when I went to U.K. in January, 1951, I took the opportunity of spending some time for the purpose of discussing matters relating to the recognition of Indian degrees with the authorities of the General Medical Council. In December, 1953, Sir David Campbell, President of the General Medical Council, paid a visit to this country with a view to discussing fully with me and other authorities here the outstanding questions of recognition which had been the subject of correspondence between the two Councils. He had visited Bombay, Poona, Madras, Mysore, Calcutta, Delhi, Agra and Gwalior, and in each centre he was given every

opportunity to see the medical colleges and hospitals and to have talks with the staff.

In his Presidential address to the General Medical Council, dated 25th May, 1954, Sir David Campbell informed the Council that from his experience, he was convinced that the Medical Council of India have been very earnest in their efforts to maintain and to improve the standard of medical education and in spite of the difficulties, they have been on the whole successful. Sir David has himself stated that his visit to India was not and could not be in any sense of the term an inspection. As a result of the discussions we have had with him and what he had seen for himself, the General Medical Council has recognised tht M.B.B.S. degrees granted by the Universities of Bihar, Gauhati, Gujarat, Poona, East Punjab, Utkal, Nagpur, Rajputana, Baroda, Agra, Delhi, and also the qualifications of M.M.F. (West Bengal) and M.C.P.S. of College of Physicians and Surgeons, Bombay. The question of recognition of the M.B.B.S. degrees of the Universities of Mysore, Osmania and Kerala, are under consideration. It is however, regretted that the General Medical Council could not see its way to giving retrospective recognition to some Indian qualifications in the same manner as they have been recognised under the Indian Medical Council Act, 1933. We shall continue our efforts not only to improve further our standards in medical education, but also to have fair schemes of reciprocity with other countries. Indla is now an independent country and it behoves us to see that reciprocity in the matter of recognition of medical qualifications should not be dependent on recognition through any body or agency other than the Medical Council of India.

As you are aware, in the interest of medical relief and medical education in India, we have adopted resolutions under which foreigners and Indian citizens holding non-scheduled medical qualifications are allowed to register with the State Medical Councils. This provision has been made so that Indian citizens should not be deprived of their livelihood after obtaining medical qualifications from foreign countries with which reciprocity could not be established. Secondly, India should not close her doors to foreigners if they come here to help in the progress of medical relief and medical education. Under these resolutions, 149 foreigners and 22 Indians holding foreign non-scheduled medical qualifications have been allowed registration during my stewardship.

The existing 1933 Act was enacted when India was under foreign rule and in spite of the inherent handicaps in this Act about which the Council has been repeatedly voicing its views, the Council has done its best to serve the purposes of the Act within its limitations. As you know, the Indian Medical Council Act, 1956 is going to be enforced before long and it would devolve greater responsibilities and powers on the Council. I may briefly mention the salient points of this Act.

(a) At present the membership of the Council consists of 39 members, but under the new Act the number would increase to 67. This would include 8 members nominated by the Central Government, 13 representatives of the State Governments and 25 representatives of the Universities having medical faculties, 14 representatives of the registered Medical Graduates and 7 Licentiates.

(b) The term of office of the Vice-President is for two years at present, but under the new Act it has been extended to five years.

(c) A provision has been included in the Act that if a member is absent from three consecutive ordinary meetings of the Council without excuse, or if he ceases be a member of the Medical Faculty or if he ceases to be a person enrolled on the State Medical Register concerned, as the case may be, he shall be deemed to have vacated his seat on the Council.

(d) The number of members of the Executive Committee has been raised to a maximum of 10 as against 5 at present, besides the President and the Vice-President who will be *ex-officio* members.

(e) A significant provision has been added that a member of the Council shall hold office for a term of five years from the date of his nomination or election, or until his successor shall have been duly nominated or elected, whichever is longer, but the successor in a casual vacancy would hold the office for the remaining period of the term of the original member.

(f) As regards reciprocity a provision has been added that where the Council has refused to recommend any medical qualification, the Central Government after considering such application from the authority concerned, after obtaining from the Council a report, if any, as to the reasons for any such refusal, may by notification in the official gazette amend the schedule so as to include such qualifications therein. The Act containins three such schedules as follows :

(1) The First Schedule would contain recognised medical qualifications granted by Universities or Medical Institutions in India.

(2) The Second Schedule shall contain recognised medical qualifications granted by medical institutions outside India.

(3) The Third Schedule has been divided into two parts :

Part I would contain recognised medical qualifications granted by medical institutions not included in the 1st Schedule but recognised in the States.

Part II would contain recognised medical qualifications granted by medical institutions outside India not included in the Second Schedule, i.e. such qualifications which would be recognised by the Council for registration purposes on individual merits.

(g) In the field of medical education the responsibility of the Council is extended beyond the under-graduate stage into the post-graduate or post-qualification stage and the Council has been authorised to prescribe standards of post-graduate medical education for the guidance of the Universities, and to advise them in the matter of securing uniform standards. For this purpose the Central Government would constitute from amongst the members of the Council a Post-graduate Medical Education Committee consisting of 9 members, all of

whom would be persons possessing post-graduate medical qualifications and experience of teaching or examining post-graduate medical students. Six members of this committee would be nominated by the Central Government and the remaining three members would be elected by the Council from amongst its members. The Post-graduate Committee has been authorised to co-opt as and when necessary one or more members qualified to assist in that subject. The views and recommendations of the committee would be placed before the Council and if the Council does not agree with the recommendations made by the Committee on any matter, the Council would forward them together with its observations to the Central Government for decision.

(h) Another important function which has been allotted to the Council under the new Act is the maintenance of an Indian Medical Register containing the names of all persons who are for the time being enrolled on any State Medical Register and who possess any medical qualification of any recognised University. The manner in which the register shall be kept will be decided by the Council under their regulations to be framed with the previous sanction of the Central Government. There will be no direct central registration and the medical practitioners would continue to be registered with the State Medical Councils.

(i) In the case of appeals against the decisions of the State Medical Councils the Central Government would consult the Council before deciding the issues.

(j) With a view to affording facilities of registration to the students undergoing post-examination training as envisaged in our recommendations on professional education, provision has been made for provisional registration for clinical practice.

(k) Further the Act has provided for registration as well of sanitary science, public health etc. as additional qualifications.

(l) The person whose name has been entered in the Indian Medical Register has been given the privileges under the Act to practice as a medical practitioner in any part of India and to recover in due course of Law in respect of such practice, any expenses in respect of medicaments or other appliances or any fees to which he may be entitled.

After the enforcement of the new Act you will be called upon to frame the regulations to carry out the purposes of the Act as required under section 33. I hope under the new Act, the Council will be able to function more effectively and usefully in the matter of providing efficient and qualified medical aid to the teeming population of the country.

At the outset I referred briefly to the Indian Medical Council (Amendment) Bill 1958. The Statement of objects and reasons given by the Union Health Minister Shri Karmarkar explains that:

"Before the Indian Medical Council Act, 1956 (102 of 1956), can be brought into operation, it is necessary that action is taken by the States (more particularly the recognised States) *to get the State Medical Registers prepared as the Medical Council* to be constituted under the Central Act will consist, among others, of members elected from among themselves by persons enrolled on the State Registers. Action in this behalf has been or is being taken by the State Governments; but this is bound to take some more time. In the meantime, it has been represented to the Government that unless the Act is brought into force, *persons possessing certain licentiate qualifications and persons who are citizens* of India possessing certain foreign medical qualifications, which are not recognised under the existing Act, *will not be eligible for enrolment on the State Medical Registers.* In the circumstances, Government consider that the Act should be brought into force without further delay.

"As soon as the new Act is brought into force, the existing Council will cease to function as there is no provision for continuing the existing Council, and some time will necessarily have to elapse, before a new Council can be constituted under the 1956 Act. As it is desirable that there should be continuity in the existence of the Medical Council, it is proposed to provide for the continuance of the existing Council after the commencement of the new Act until the new Council is constituted. The Bill gives effect to this object."

NOTES AND NEWS

Medical Educators of World to Hold Conference

Medical educators from more than 62 countries will meet at the Palmer House, Chicago, Illinois, August 30 to September 4, 1959 to exchange information and consider the problems of graduate, postgraduate and continuing education for the doctors of the world.

"Medicine—A Lifelong Study" will be the theme of the Second World Conference on Medical Education organized and sponsored by The World Medical Association in collaboration with the World Health Organization, the International Association of Universities and the Council for International Organizations of Medical Sciences.

The Programme Committee has invited approximately 125 speakers from more than 55 countries to present papers and has planned the programme with a view toward devoting adequate time for discussion on each topic. Simultaneous translation in English, French and Spanish will facilitate the exchange of ideas among the world's leading medical educators, investigators and practitioners as they seek efficient application of medical methods for assisting every doctor to increase his knowledge of medicine concomitantly with the rapid advances in medical science.

In addition to the didactic programme, the American Medical Association and the Association of American Medical Colleges, as Conference hosts, are offering pre- and post-convention tours to various centres of medical education. During the Conference week, the five (5) medical schools in the Chicago area will be open for observation and comparison by the conference participants. These schools represent three prevalent systems in the U.S.A. for providing medical education—namely schools owned and operated by non-governmental, non-religious associations; religious ownership and operation; and governmental management.

A technical and scientific exhibit will feature the most recent educational aids and methods. Scientific advances in technology and the psychology of education will be combined to demonstrate the effectiveness of their application in medical education.

The social programme is being planned to facilitate personal contact between the participants and provide opportunity for informal exchange of ideas.

S. E. Asia Conference Proposals on Occupational Health

Guide lines for the setting up and further development of occupational health services in South East Asia —made necessary by the increased speed of industrialisation—are laid down in the conclusions reached at the S. E. Asia Conference on the subject, recently concluded in Calcutta.

The S. E. Asia Conference jointly sponsorded by WHO and ILO, recently concluded in Calcutta brought together experts from six countries of the Region. Here is a summary of the recommendations.

Who pays for such services?—Occupational health services, the Conference concluded, are clearly the responsibility of the employer. Therefore, within the undertaking, they should be organised and paid for by him. On the other hand, the provision of community health services covering workers and their families in the S. E. Asia Region is usually a governmental responsibility.

What care should be provided?—Until community health services are fully developed, occupational health services should provide a certain measure of preventive and curative service, the extent of this being determined by local needs and resources. The services should cover diseases of non-occupational as well as occupational origin.

How shall the services be organised?—The form of organisation should be worked out by committees, at national, provincial and local levels, and consisting of representatives of employers' and workers' organisations, government and the medical profession.

Providing the manpower and the knowledge—(1) Institutes of occupational health should be developed in all countries of the Region to provide service, research, training and technical information. Use should also be made of professional organisations in the field of occupational health.

(2) Training of physicians in occupational health in S. E. Asia is necessary and should be given at three levels: to the medical undergraduate, the physician entering or already working in industry and the physician desiring to specialise in the subject.

(3) In organising post-graduate training in occupational health it is desirable to undertake joint training of various groups in order to enhance future team-work.

(4) As an interim measure, since fully trained registered nurses trained in industrial nursing are not available in the Region at present, it is necessary to train a number of auxiliary personnel to do some of the work usually entrusted to nurses.

(5) A suitable number of people trained in first aid should be available in every undertaking. Regular courses in first-aid should be given by the industrial physician.

Student engineers, students of various trades, factory inspectors, management and supervisors, social welfare officers and workers should be given some orientation towards occupational health. One of the main elements in the development of an occupational health programme should be the health education of both management and workers.

No progress can be expected without the understanding and co-operation of both parties and this understanding should be fostered at the earliest stage of development.

In establishing occupational health services it is not possible to exclude either legislation or persuation—nor is it possible to rely on either one or the other as the only method. In nationalised undertakings, however, occupational health services should be developed on a statutory basis.

The closest collaboration between occupational health services and community health services is necessary in order to enable the occupational health services gradually to concentrate on their specific tasks. Within the undertaking teamwork is absolutely essential in dealing with occupational health problems.

IV International Course on Tomography

The fourth International Course on Tomography shall be held at the Institute University of Genoa, under the direction of Prof. Alessandro Vallebona.

This Course shall last 8 days and deal particularly with the recent progresses in tomographical methods.

The period *September-October 1959* has been chosen for this meeting.

Persons interested in attending the course may inform Prof. Neopolo Macarini, General Secretary (Instituto di Radiologia della Universita—Ospedale San Martino—Genova—Italia) who will give details if requested.

The Nutrition Society, London

The following is the programme of a symposium to be held at the Royal Veterinary College, Royal College Street, London, N.W. 1 on Saturday, March 7th, 1959, on Rumen Function. The following are the speakers:

Dr. C. C. Balch, (The National Institute for Research in Dairying, Shinfield, Reading, Berks); Dr. M. J. Head (The National Institute for Research in Dairying); Dr. G. A. Garton, (The Rowett Research Institute, Bucksburn, Aberdeenshire); Dr. J. A. F. Rook, (The National Institute for Research in Dairying); Miss J. M. Radie, (The Rowett Research Institute); Mr. C. S. W. Reid, (Plant Chemistry Division, D.S.I.R., Palmerston North, New Zealand, at Physiological Laboratory, Cambridge); Dr. A. J. Phillipson, (The Rowett Research Institute); Mr. J. K. D. Dow, (Unilever Limited Food Research Department, Colworth House, Sharnbrook, Bedford).

The Gairdner Foundation Awards

The Gairdner Foundation today announced its first International Awards in Arthritis and Heart Disease, totalling $40,000. Medical scientists from England,

United States and Canada are included among the seven recipients : Dr. Alfred Blalock and Dr. Helen B. Taussing of Johns Hopkins University, Baltimore, Md., Dr. Harry M. Rose and Dr. Charles Ragan of New York City, Profs. W. D. M. Paton and Eleanor Zaimis of London, England, and Dr. W. G. Bibelow of Toronto, Ontario, Canada.

The Gairdner Foundation was incorporated in December, 1957. Its funds derive from personal gifts of J. A. Gairdner, a Canadian industrialist.

New Bibliography of Aviation Medicine Published by Aero Medical Association

The Aero Medical Association, in co-operation with the Library of Congress, has completed arrangements to publish a comprehensive annotated bibliography of aviation medical literature for 1953, according to an announcement by Brigadier General M. S. White USAF (MC), Washington, D.C., president of the society. The volume will be off the press early in January 1959.

Entitled, *Aviation Medicine : An Annotated Bibliography, Vol. II (1953 Literature)*, the work includes 1,386 references and abstracts from nearly 200 American and foreign journals. Subsequent annual volumes will contain published reports from the literature of 1954 to the present.

Eradication of Malaria—American Grant to India

The United States Technical Co-operation Mission has made a grant of Rs. 2·8 crores to the Government of India in connection with malaria eradication programme. This brings the total U.S. contribution to India's malaria eradication programme to Rs. 4·8 crores for this fiscal year.

With the new 5,790,000-dollar aid agreement signed at New Delhi on December 2, 1958. India will import about 7,000 long tons of DDT insecticide, 450 jeeps and jeep tracks, 720 microscopes, five million chloroquin tablets and books and laboratory equipment.

This latest U.S. grant is in continuation of Indo-American co-operation in the Malaria programme with which the United States has been associated since its beginning in 1952. It brings the total U.S. support to the Malaria control and eradication schemes to date to Rs. 23·77 crores.

Prevention of Leprosy—B.C.G. Vaccine Recommended

The Scientific Advisory Board of the Indian Council of Medical Research has recommended to the Union Health Ministry that B.C.G. vaccination should also be used on an experimental basis in the prevention of leprosy among children.

The Board, which met at Indore recently emphasised the need of integrating the work of maternal and child welfare and family planning centres established by the Ministry throughout the country.

The Board sanctioned Rs. 70 lakhs for intensifying medical research programmes in India.

The Board appreciated the work done by the working parties set up to study the problem of malnutrition in India and decided to formulate low-cost menus for different age groups and for different physical conditions.

Noting with satisfaction the results obtained by the use of calcium in the Indian diet, the Board felt that fortification of salt with calcium, or modifying the salt-manufacturing process to retain a certain amount of calcium from the sea water, should be considered. This single measure was likely to promote the proper development of children throughout the country, the Board said.

Five Plants for Production of Drugs—Soviet Experts' Report : Offer of 80 Million Roubles

The Minister for Industry, Mr. Manubhai Shah, told in the Rajya Sabha that the report of the Soviet experts on the setting up of drug industries was under the consideration of the Government and a decision was likely to be reached soon.

Mr. Shah said that the Soviet Government had offered 80 million roubles to cover the foreign exchange requirements of all the five plants that they had recommended.

Mr. Shah said that the Soviet team had recommended the setting up of five plants for manufacturing various drugs including antibiotics. They had not worked out any cost of production and no firm cost could be established until a unit was set up and had begun manufacturing. The Hindustan Antibiotics at Pimpri was already producing 40 million mega units of penicillin while other private manufacturers were producing 30 million mega units compared to Indian demand for 60 million mega units.

Medical College Plan

The U. P. Government has approved the setting up of a medical college at Aligarh Muslim University.

The University has already collected Rs. 75 lakhs for the purpose, excluding Rs. 10 lakhs contributed by King Saud of Saudi Arabia.

Protection from Radiation in Hospitals

In a written reply to a question in the Rajya Sabha on November 24, 1958, the Minister of Health, Shri D. P. Karmarkar said that there was no proposal under the Health Ministry's consideration at present to provide measures for protection from radiation in hospitals. It was, however, proposed to consider the question of regulation and control of installations where X-rays and radio-active substances or other forms of ionising radiation were used in the next meeting of the Central Council of Health, to be held in January, 1959.

Supply of X-ray Films to State Government

In a written reply to a question in the Lok Sabha on November 21, the Minister for Health, Shri D. P. Karmarkar said that the West Bengal Government had asked the Central Government for supply of X-ray films. Immediate arrangements were made through the State Trading Corporation for the release of X-ray films to meet two months' requirements of the State Government. Further supplies of X-ray films ordered by the State Trading Corporation against rupee payment are

expected to be received very soon and the stocks so materialised will be distributed amongst the State Governments in accordance with their requirements, he said.

Family Planning Clinics

In a written reply to a question in the Loka Sabha on 12-12-58, Shri D. P. Karmarkar, Minister of Health, said that there was no specific scheme to establish family planning clinics district-wise in the country although all districts were likely to be covered under the present scheme.

It was proposed that 500 well equipped and staffed control should be opened in urban areas and 2,000 in rural areas during the Second Five Year Plan period. It was also proposed that as far as possible a family planning clinic should be opened in all maternity and child welfare centres, primary health centres, dispensaries, hospitals and medical teaching institutions.

In rural areas, the centres were to be associated with the existing primary health centres. Each centre would normally cover a population of 50,000.

Madras Scheme of Sterilisation

Dr. D. P. Karmarkar said in the Lok Sabha that according to available information the Government of Madras had instituted the following schemes of sterilisation :—

(i) Four medical practitioners in Madras city have been appointed for vasectomy operations for a period of one year. The rate of subsidy was Rs. 25/- per operation for a period of 12 months from the date on which a surgery was first approved for subsidy under the scheme; the rate was reviewed and revised from year to year. The subsidy was restricted to cases of operation on persons with an income of Rs. 200/- or less per mensem.

(ii) Scheme of payment of special remuneration of Rs. 2/- for each case operated to the canvassers and tutors in family planning to canvas and send cases of vasectomy to approved surgeries of Government hospitals.

(iii) Scheme in Madras city called the 'Madras City Public Employees Family Welfare Scheme' under which concessions had been extended to public employees in Madras City, seeking surgical methods of family planning. Under this scheme, public employees in Madras city who had attained the age of 32, in the case of men, and 26 in the case of women, and who had not less than three living children were eligible to avail of the concessions extended under the scheme. For men undergoing vasectomy operation a cash grant of Rs. 15/- each, and for women undergoing salpingectomy operation a cash grant of Rs. 25/- each was payable under this scheme. To perform vasectomy operation under this scheme, two surgical teams had been set up—one at the Government General Hospital and the other at the Government Stanley Hospital, Madras. As salpingectomy was being performed usually immediately after delivery and as the medical unit in which such patients were admitted for confinement were performing the operation of willing patients, no separate surgical unit for salpingectomy was being set up under this scheme.

CORRESPONDENCE

The Editor is not responsible for the views expressed by correspondents

Aspects of Medical Practice

SIR,—Medical practice wears a variable pattern in different places but the basic characters and general governing principles are the same all the world over.

A rich heritage of correct and ethical conduct has been handed down to us from generation to generation in our country and it should be the aim and endeavour of the medical men and women of today to live up to and maintain those high traditions. Some of our greatest physicians and surgeons, as some of you may recall, were outstanding examples of courtesy and integrity and enjoyed the love and respect of the communities among which they lived and practised their profession. They set by precept and example splendid models of dignity and efficiency and were respected leaders of their times.

What should be the duties of the medical men and how they should be circumscribed is a question of great importance for our profession.

Duties—A patient comes to us in his hour of need during sickness. We must treat him with good will, courtesy and sympathy. Where a drug may fail to cure, a word of sympathy may assuage the stricken brow. A medical man is certainly entitled to choose his patient but it is not ethical to refuse treatment in an emergency. Once you have accepted the charge of a patient, it is your responsibility to exercise due care and diligence in the diagnosis and treatment using the best means and opinions available to you. The criterion from which you will be judged will be the skill and professional knowledge which your other collegues with a similar qualification employ.

You are justified in leaving a patient if your fees are not paid when demanded; you cannot leave a patient without his consent except for valid reasons. The discovery that the disease is incurable is not a legitimate excuse.

Fees—The question of fees to be charged is a moot question. It is very desirable that every medical man should formulate in his own mind the scale of fees to be charged for each type of service he renders, in accordance with his qualifications and the conditions prevailing in the community where he sets up his practice. As our profession should always be prepared to make a sacrifice at the alter of humanity, the fees should be lowered in proportion to the status and financial resources of the patient. Beylond this concession to the indigent, it is not correct to cut down the charges. There are always the State and Municipal hospitals for the poor and the private practitioner has to live in these hard times.

Secrecy—The possession of any knowledge gained by you in the course of your examination and treatment of your patient must be considered in the nature of a sacred trust and must not be disclosed without the consent of the patient or on an order from a presiding judge in a court of law.

We come across on many occasions the intriguing problem of communicating our opinions to the patients and their relatives and friends. Although we are in duty bound to tell the patient all the full details of his condition, it becomes at times a very difficult task to convey to him the extreme gravity of his case. What should be our attitude? I think it is a wise procedure to communicate to the accredited relation or friend of the patient at the earliest possible moment, the exact condition of the patient but when the danger of imminent death approaches we should convey that information to the patient himself in guarded terms. I have found that such a procedure usually succeeds in reconciling the patient to his inevitable end.

Relation between medical men—I now come to the relations which should prevail between the members of the medical profession. It is most essential that they should be cordial. All its members should join hands in forming local associations for the purpose of friendly discussions on medical and scientific subjects. It is only by such personal contacts in regularly established societies that knowledge can be exchanged and developed.

Consultants—There are different grades in the medical profession, e.g., the consultant, who may be a physician, surgeon or a gynaecologist. He will naturally claim higher fees which are his due, but it is right and proper that he should always confine himself to the work he has assigned to himself and not encroach upon the field of a general practitioner.

Other system of medicine—Modern scientific medicine which we practise stands in a class by itself. All other so-called 'Pathies' are based on unscientific foundations and their practitioners have very little in common with us. Any synthesis between any of these systems with modern medicine is an unnatural hybrid and it is very unwise to assist in the birth and growth of such a hybrid. If the powers that be who rule over us wish to perpetuate this synthetic phenomenon, let it not be our business to assist in the propagation of the species. If other systems of medicine are allowed to exist in the country we can only say let them be. Ours not to associate with them. I am etc.

C. S. THAKAR,
Bombay — Ex-President, I.M.A.

Eye Relief Schemes in U.P.

SIR,—The U.P. State Government have sponsored Eye Relief Schemes in some parts of the State, and some of the camps established for this purpose are entrusted to persons who are ineligible to be registered under the U.P. Medical Act III of 1917. Is it proper for persons registered under the said Act to be professionally associated with persons who are thus not eligible? Does it not violate medical ethics?

This subject was referred to the State Government in April 1958 but I have not heard from them yet after several reminders, hence I would like to know the opinion in this matter from our Association members. I am etc.

Banaras — DR. A. K. BANERJEE.

REVIEWS

Birth Control for the Layman—By Dr. R. Swaroop, M.B.B.S. Second edition, 1958, published by Madhuri Publishers, 15, Gokhale Marg, Lucknow, U.P., India. Board bound; 8¾″×5¾″, 94 pages with 13 photographs and drawings; price Rs. 3·75.

This small book has 13 chapters devoted to discuss the subject, in a simple and easily understandable language. The subject of birth control has been explained first, after which considerations have been given to the various methods, appliances and techniques available today, in order to achieve the object of birth control. The style and descriptions are likely to impress the non-medical readers, for whom the book is written. The discussions are reasonably up-to-date, only the generally accepted information being passed on to the reader. With a better quality of paper, the book would be much more acceptable, but would understandably have increased the price which in this case appears reasonable.

Indigenous Drugs of India : Second Edition, revised and rewritten by Col. Sir R. N. Chopra, I. C. Chopra, K. L. Handa and L. D. Kapur : U. N. Dhar & Sons Private Ltd., 15, Bankim Chatterjee Street, Calcutta 12, 1958. Pages xiv+816. Price Rs. 50/- or 105 sh. (in Great Britain).

During the quarter of a century following the publication of the first edition of this monumental work in 1933 there has been a growing interest in the subject amongst the members of the medical profession as well as those interested in pharmaceutical products and chemicals all over the world.

After the termination of the second world war, when India wanted to be self-sufficient in her drug supply as far as possible, the numerous pharmaceutical concerns that came into being, tried to utilise the treasure-trove of information contained in this unique and incomparable monograph. It threw open new vistas and pointed to fresh fields and plentiful sources of utilisable pharmaceutical materials which were hitherto untapped and unexplored.

References at the end of each section of Indian Medical Plants and the list of literature on Indian Materia Medica in Part IV, Sections I and III, will bear testimony to the valuable and original contributions made by the original author Col. R. N. Chopra.

Figures supplied by Dr. B. Mukerji, Director of Central Drug Research Institute, Lucknow, go to show that the production of pharmaceutical, galenicals, etc., is more or less satisfactory. In some of the items there is surplus for export also. Unfortunately there is considerable deficiency in the field of basic chemicals, antimalarial and chemotherapeutic drugs, and antibiotics.

Indiscriminate exploitation of valuable medicinal plants like rauwolfia, belladonna, ephedra, etc., in recent years has resulted in an almost complete depletion of a number of these medicinal plants, condiments and spices. Improvement of economic medical plants by cultivation is presented as a fascinating study and would go to improve the potential wealth of the country.

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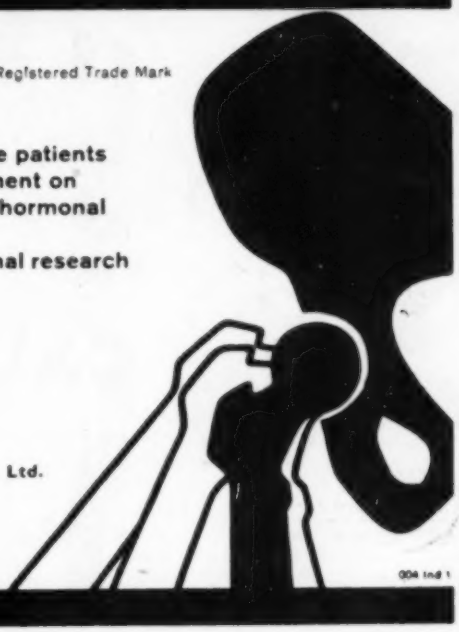

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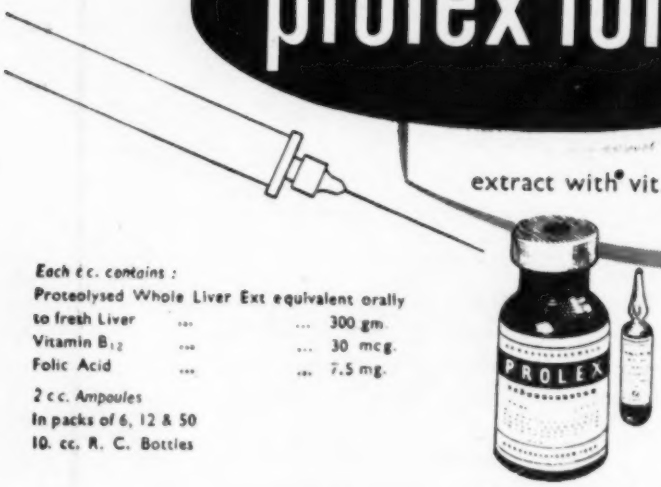

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Merits and qualities of a large number of indigenous drugs have been recognised not only in the Indian Pharmacopoeial List, the Indian Pharmaceutical Codex and the Indian Pharmacopoeia but in the pharmacopoeias of other countries in Europe and America. They are rather too numerous to be mentioned. Rauwolfia has been introduced into America and the continent as one of the best hypotensive and ataractic drugs.

Recently working on *Cissampelos pareira*, growing abundantly in the lower ranges of the Himalayas, a substance has been isolated which is as good a muscle relaxant as d-tubocurarine chloride. From *Thevetia nerifolia*, a pure glycoside has been obtained having properties and uses similar to digitalis. The use of *Plantago ovata* of old India has now been accepted all over the world as an excellent agent in irritating conditions of the gastrointestinal tract.

The vastness of the yet unexplored fields may be gauged or guessed from the fact that about 2000 remedies are still there to be investigated and "there is likelihood that some of these may be effective in the treatment of disease".

The authors have not only served their readers with all that is worth knowing on the subject but has proved convincingly how very well and worthwhile it will be for all who are concerned and interested in it to dive and delve deeper and deeper into the rich mines of indigenous materia medica.

It is impossible to do justice to this encyclopaedic work in a brief review, we can only emphasise the need for possessing a copy of this precious work on all who have anything to do with the study and teaching; research and manufacture, growth and cultivation of the indigenous drugs of India either for scientific or commercial purposes.

1957-58 Year Book of Cancer—Compiled and edited by Randolph Lee Clark, Jr., B.S., M.D., M.SC. (SURG.), D.SC. (HON.) and Russel W. Cumley, B.A., M.A., PH.D. Published 1958 by the Year Book Publishers Inc., 200 East Illinois Street, Chicago 11, U.S.A. Board bound, 5½" × 8", 523 pages; price $8.00.

This volume is one of the 15 comprising the Practical Medicine Series of Year Books founded in 1900; that on Cancer being one of the last few added on to the list. This volume appears very ably to serve the purpose of the book—to provide the reader with concise abstracts of the more significant articles in the broad field of oncology which appeared during the preceding year. As things stand today, it is impossible for the physician to have more than the most superficial knowledge of investigations beyond the scope of his own professional speciality. With this volume, the various specialists, e.g., the pathologist, surgeon, radio-therapist, internist, general practitioner, the research scientist and others, may learn of the work of their colleagues in other fields; the ultimate beneficiary being the patient. This book results from the collective efforts of 365 people who have thoughtfully and patiently given of their time and skills. The 124 members of the Editorial Board divided into 24 groups, selected 235 articles from a total of 4,000 published during the year for inclusion in this Year Book. The articles finally selected come from a total of only 84 journals of which 59 are published in the U.S.A. and 25 from outside. A total of 53 articles have been taken from journals outside U.S.A., of these 37 were in English and 16 were in other languages. It must be said that the Editorial Board has done a great job in wading through such a huge mass of literature on the various aspects of cancer; and the book is well worth the reading by all concerned in any of the aspects of cancer.

Sir Charles Bell, His Life and Times—By Sir Gordon Gordon-Taylor, K.B.E., C.B., F.R.C.S. and E. W. Walls, M.D., CH.B., B.SC., F.R.S. (ED.). Published 1958 by E. & S. Livingstone Ltd., 16-17, Teviot Place, Edinburgh, and London. Board bound, paper jacket, 8¾" × 6½", 288 pages; price 42s. net.

The publishers have to be congratulated for their series of books of Notable Historical Biographies, to which this book seems to be the laest addition. The authors have also acquitted themselves exceedingly well in the discharge of the task, which must have been a difficult one, as one easily appreciates on reading through the book. Part of the authors task has been to see Sir Charles Bell against the background of his time. There can indeed be few decades in the naval and military history of the United Kingdom more glorious than those which saw the final victories of Nelson and Wellington. For Bell these were the years of his struggle, and perhaps no part of his story is more inspiring than that in which he sought, with unremitting industry, to establish himself amongst the leaders of his profession. That he succeeded in so doing is now history. Brousing through the book is fascinating, and tempted by the bold and clear type on good paper, one feels inclined to read through to the end. The reader even feels a pang of pain while reading about the terminal years of Bell's life, burdened by poverty and tormented by frequent illness. A nicely written and well-produced book which enlightens the reader in more ways than one.

Transactions of the Association of Life Insurance Medical Directors of America—Sixty-sixth annual meeting, Vol. XLI, Edited by James R. Gudger, M.D. Published 1958 from the office of the Association of Life Insurance Medical Directors of America, P.O. Box 594, Newark 1, N.J., U.S.A. Board bound in cloth, 9" × 6"; 279 pages.

Like its predecessors, this volume contains, apart from the lists of officers, executive council, former officers, list of members of the Association, lists of companies and their representatives; a variety of interesting and illuminating articles based on the transactions of the sixty-sixth annual meeting convened on October 23, 1957, at New York. All the subjects discussed are very important and cover the foremost problems facing the medical directors in life insurance work. As is only to be expected, three of these discourses concern the

subject of hypertension and two more on cardiac affections. The discussions have been on a high level and indicate the amount of aptitude and knowledge on diverse subjects which must go to make a good, efficient and understanding medical director in connection with life insurance, specially in view of the complexities and difficulties brought in by modern advancements in medical science.

Advances in Internal Medicine –Edited by William Dock, M.D. and I. Snapper, M.D. Volue IX, 1958; The Year Book Publishers Inc., 200 E. Illinois Street, Chicago 11, Ill., U.S.A.; Board bound, 9" x 6"; price $8.50.

The well-known house of Year Book publishers have lately been putting in our hands a series of useful books in these volumes of Advances in Internal Medicine. Previous to this one, they have published eight such volumes of which, volumes 1, 2 and 7 have gone out of print. This volume has discussed the subject in the following seven chapters: (1) The metabolism of vitamin B_{12} in pernicious and other megaloblastic anaemias, (2) Corticosteroids and infections, (3) Primary and secondary hyperparathyroidism, (4) Hereditary defects in clotting mechanisms, (5) Aetiology and pathology of glomerulonephritis, (6) Pathophysiology of carcinoid tumours, and (7) Some aspects of disordered renal tubular function. Four chapters are presented by single authors while three others are offered by joint authors. But, the various subjects have been dealt with as thoroughly as is permissible in a book of this type, consistent with constant advancement of the medical science and knowledge. Exhaustive references at the end of each chapter will help the inquisitive to look up the original works whenever necessary. An author index and a subject index at the end of the book, are additional attractions and are helpful for the painstaking reader who will find the book not only interesting, but of great help and a source of pooled information on the subjects covered.

An Introduction to the Study of Experimental Medicine —By Claude Bernard. Translated by Henry Copley Green, A.M., with an introduction by Laurence J. Henderson and with a new foreward by Prof. I. Bernard Cohen of Harvard University. Published August 1958 by Dover Publications, Inc., 920 Broadway, New York 10, N.Y., U.S.A. Paper cover, 5¾" x 8", pages xxv+266; price $1.50.

Known as "the father of experimental medicine", Claude Bernard is remembered today for such major contributions to physiology, as the discovery of the vasomotor system; the action of curare, carbon monoxide and other poisons; the functions of the pancreas in digestion; and the glycogenic function of the liver. He was the first Frenchman of science to receive the public honours usually reserved for political and military celebrities. Strangely enough, Bernard's own most far-reaching discovery was the result of a mistaken hypothesis. He believed he could demonstrate the similarity, between plants and animals in the production of sugar. The attempt failed. But his investigations revealed for the first time the presence of internal secretions which are transmitted directly into the blood. Bernard's description of how a scientist attacks his problems continues to be as splendid a statement of the basic features of scientific research as has ever been written, its authority being strengthened by the importance of the author's scientific achievements which are used as illustrations. This book represents the only major work of Claude Bernard now available in English. Ninety years ago, this great French physiologist saw that medicine could be a science rather than an art, and set down his observations in this book. One of the attractive features of this book is the frankness with which Bernard examines the roles of chance and error and even preliminary false conclusions in leading eventually to scientific truth. Reading this book one is tempted to make the generalisation that sound philosophical analysis of science can be made only by a practising scientist, and the greater the scientist the better analysis. The type, paper and binding are good. The book should be read by all lovers of the subject and admirers of the great Claude Bernard.

OBITUARY

Dr. Babu Ram Garg

Born in 1890, Dr. Babu Ram Garg passed the High School Examination from St. Stephens School, Delhi, in 1910. He qualified in 1915 from King Edward Medical School, Indore, and stood first. He did a house job for a year and then started private practice in Muzaffar-

DR. BABU RAM GARG

nagar in 1916. He was a great philanthropist. He used to send donations to charitable institutions of the town voluntarily.

Dr. Garg was a very active member of the Muzaffarnagar branch of the I.M.A. and held the office of President for several years. He died on November 11, 1958.

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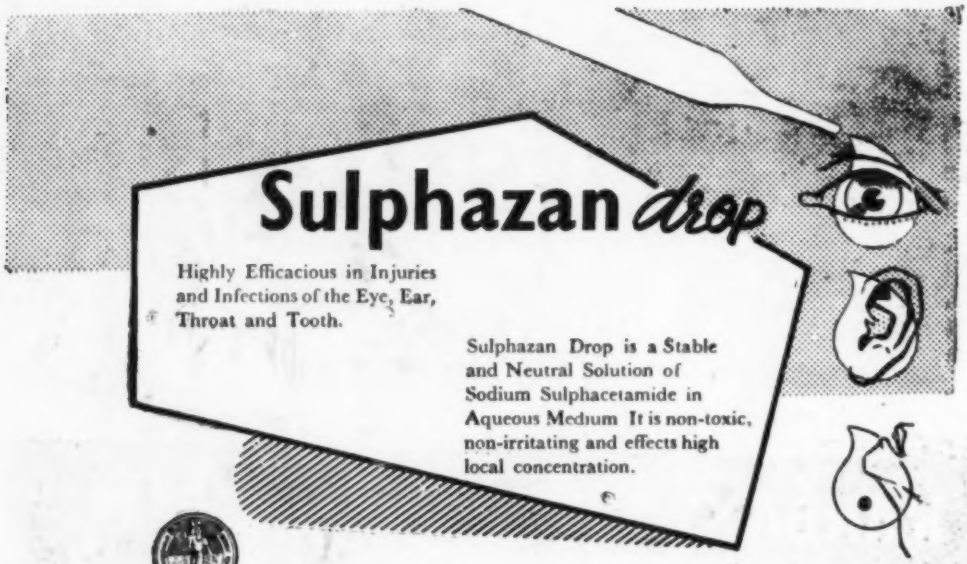

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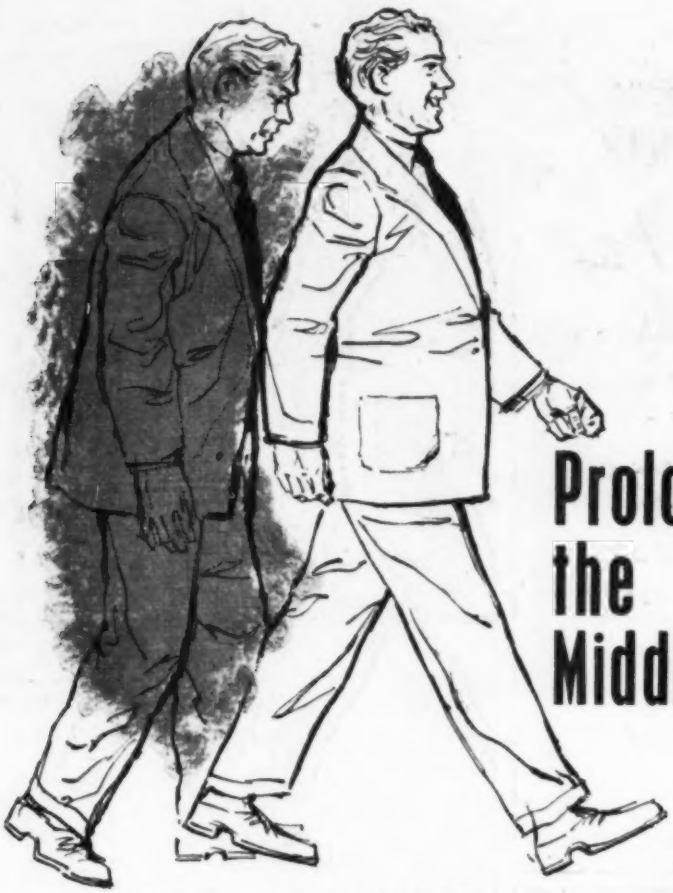

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Printed by Sri Tarani Kanta Basu at Sri Gouranga Press Private Ltd., 5, Chintamani Das Lane, Calcutta-9 and published by him on behalf of the Indian Medical Association from 23, Samavaya Mansions, Corporation Place, Calcutta-13.
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